



TANGANYIKA TERRITORY

---

# Annual Medical and Sanitary Report

FOR THE YEAR ENDING  
31st December, 1927

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*Price 5/-*

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PUBLISHED BY  
THE CROWN AGENTS FOR THE COLONIES,  
4, MILLBANK, LONDON, S.W.1.

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OFFICE OF THE  
DIRECTOR OF MEDICAL AND SANITARY SERVICES,  
DAR-ES-SALAAM,  
TANGANYIKA TERRITORY.

15th August, 1928.

SIR,

I have the honour to submit, for the information of His Excellency the Governor and for transmission to the Right Honourable the Secretary of State for the Colonies, the Medical Report on the health and sanitary condition of the Tanganyika Territory for the year 1927, together with the Returns, etc., appended thereto.

I have the honour to be,

Sir,

Your obedient Servant,

J. O. SHIRCORE,  
*Director of Medical and Sanitary Services,  
Tanganyika Territory.*

THE HONOURABLE  
THE CHIEF SECRETARY TO THE GOVERNMENT,  
DAR-ES-SALAAM.



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# TANGANYIKA TERRITORY.



## REFERENCE.

- Lakes and Sea .....
- Boundaries of S.S. Areas .....
- Increase of S.S. Areas observed 1927 .....
- Evacuated Area .....
- Provincial Boundaries .....
- Territorial Boundaries .....
- Concentrations .....

# TANGANYIKA TERRITORY.

## Annual Medical and Sanitary Report, 1927.

### I.—ADMINISTRATIVE.

#### (a) Staff.

##### *European :*

Director of Medical and Sanitary Services.	24 Nursing Sisters.
Deputy Director of Medical Service.	1 Laboratory Assistant.
Deputy Director of Sanitary Service.	1 Chief Clerk.
Deputy Director of Laboratory Service.	2 Clerks (one appointed during the year).
5 Senior Medical Officers.	1 Storekeeper.
1 Sleeping Sickness Officer.	2 Assistant Storekeepers.
42 Medical Officers.	1 Hospital Quartermaster.
2 Dental Surgeons.	1 Medical Instructor.
1 Assistant Bacteriologist.	1 Assistant Medical Instructor.
1 Entomologist.	1 Superintendent, Mental Hospital.
1 Analytical Chemist (arrived in February, 1928).	1 Matron, Mental Hospital.
4 Senior Nursing Sisters.	1 Building Inspector.
	17 Sanitary Superintendents.

##### *Special Expenditure :*

(For Kahama Maternity and Child Welfare Research.)

##### *European :*

1 Medical Officer.  
2 Sisters and Health Visitors.

##### *Asiatic :*

4 Sub-Assistant Surgeons.

##### *African :*

2 Motor Drivers.  
20 Ayahs.

##### *Asiatic :*

2 Assistant Surgeons.  
2 Senior Sub-Assistant Surgeons.  
48 Sub-Assistant Surgeons.  
36 Compounders.

1 Special Grade Clerk.  
1 1st Grade Clerk.  
9 2nd, 3rd and 4th Grade Clerks.  
3 Sanitary Inspectors.

##### *African :*

9 Clerks.  
50 Dispensers.  
236 Sanitary Inspectors.  
7 Vaccinators.

565 Hospital Attendants, Nurses, Dressers and Menials.  
1,056 Sanitary Labourers.

### APPOINTMENTS.

##### *European :*

Dr. S. E. Theis	to be a Medical Officer,	2nd September.
Dr. J. Harkness	do.	do.
Miss M. Harvey Clarke	do.	16th November.
Dr. C. J. MacQuillan	do.	25th November.
Dr. C. Wilcocks	do.	25th November.



APPOINTMENTS—*continued.*

Miss J. D. Leighton to be a Nursing Sister, 18th February.  
 Miss M. Andrews do. do.  
 Miss R. V. G. Daye do. 2nd September.  
 Miss E. M. Hayward do. 10th June.  
 Miss M. V. McIlroy do. do.  
 Miss J. L. Vaux do. 13th October.  
 Miss M. Taylor do. 23rd December.  
 Mr. P. A. Moran to be a Sanitary Superintendent, 3rd March.  
 Mr. H. L. Lachlan to be a Clerk, 15th September.  
 Mrs. M. M. Makins to be a temporary Sister and Health Visitor, 2nd February.  
 Mrs. T. G. Jones to be a temporary Sister and Health Visitor, 6th September.  
 Mr. J. E. Crawley to be Medical Instructor, 1st April.  
 Mr. J. H. Stafford to be Assistant Medical Instructor, 1st July.

*Asiatic :*

Mr. V. S. Kanitkar to be a Sub-Assistant Surgeon, 16th March.  
 Mr. K. V. Ananthakrishna to be a Sub-Assistant Surgeon, 30th March.  
 Mr. N. C. Daniel to be a Sub-Assistant Surgeon, 13th April.  
 Mr. S. S. Nadkerni do. do.  
 Mr. I. D. Abraham to be a Sub-Assistant Surgeon, 6th July.  
 Mr. M. S. Reddi to be a Sub-Assistant Surgeon, 7th December.  
 Mr. R. C. Karpal to be a Compounder, 1st May.  
 Mr. Kishori Lal do. 16th April.  
 Mr. Katar Singh Chondary to be a Compounder, 1st October.

## ACTING APPOINTMENTS.

Dr. A. H. Owen, Acting Director of Medical and Sanitary Service from 10th April to 10th November.  
 Dr. C. L. Ievers, Acting Deputy Director of Medical Service from beginning of the year to 13th July.  
 Dr. R. R. Scott, Acting Deputy Director of Sanitary Service from 10th April to 10th November.  
 Dr. J. F. Corson, Acting Deputy Director of Laboratory Service from 27th November to end of the year.  
 Dr. G. R. C. Wilson, Acting Senior Medical Officer from beginning of the year to 15th April.  
 Dr. C. B. B. Reid, Acting Senior Medical Officer from 16th June to 20th November.  
 Dr. J. H. Parry, Acting Senior Medical Officer from 7th February to end of the year.  
 Dr. A. McA. Blackwood, Acting Senior Medical Officer from 21st November to end of the year.  
 Dr. C. F. Shelton, Acting Senior Medical Officer from beginning of the year to 6th February.  
 Dr. R. Nixon, Acting Senior Sanitation Officer from 13th July to 10th November.  
 Dr. A. McKenzie, Acting Senior Sanitation Officer from 9th April to 13th July.  
 Dr. H. Fairbairn, Acting Sleeping Sickness Officer from 16th January to 10th August.  
 Miss A. Muncaster, Acting Senior Nursing Sister from beginning of the year to 28th July.

## PROMOTIONS.

*European :*

Dr. G. R. C. Wilson, Medical Officer, to be a Senior Medical Officer, 16th April.  
 Mr. J. E. Crawley, Hospital Quartermaster, to be Medical Instructor, 1st April.  
 Mr. J. H. Stafford, Clerk, to be Assistant Medical Instructor, 1st July.

*Asiatic :*

Mr. D. A. Purandre, Sub-Assistant Surgeon, to be a Senior Sub-Assistant Surgeon, 9th September.  
 Mr. Acacio L. B. Fernandes, 1st Grade Clerk, to be Special Grade Clerk, 1st April.



## RETIREMENT.

Dr. J. McK. Clark, Senior Medical Officer, 14th April.

## AGREEMENTS EXPIRED.

Miss O. Borrett, Nursing Sister, 5th August.

Miss I. D. McDonald, Nursing Sister, 7th September.

Miss C. M. Bishop, Nursing Sister, 28th December.

## AGREEMENTS TERMINATED.

Sub-Assistant Surgeon A. M. Bhosle, 18th May.

Compounder G. P. Gandhi, 19th March.

Compounder Kishori Lal, 31st December.

Compounder Chanan Ram, 30th April.

## RESIGNATION.

Miss M. E. Fraser, Nursing Sister, 30th April.

## DEATHS.

J. C. Lemos, Assistant Surgeon, 4th September.

D. G. Kelkar, Senior Sub-Assistant Surgeon, 8th September (while on leave in India).

A. Varma, Compounder, 12th November.

## INVALIDINGS.

Dr. P. S. Bell, Medical Officer, 28th July.

Miss B. A. D. Acton, Nursing Sister, 6th February.

A. K. Patreeker, Sub-Assistant Surgeon, 6th December.

**(b) List of Ordinances affecting Public Health enacted during the Year.**

Government Notice No. 1, under the Vehicles Licensing Regulations 1926, prescribes the patterns of the number plates for the year 1927 (i) for a hamali cart drawn or propelled by hand power (and capable of carrying a load exceeding 500 lbs.), (ii) by means of animal power, and (iii) for a spider or light vehicle.

Government Notice No. 7, under the Infectious Disease Ordinance 1920 (No. 3 of 1920), prescribes Encephalitis Lethargica as an infectious disease.

Government Notice No. 8, under the Native Authority Ordinance 1926 (No. 18 of 1926), declares that the said Ordinance shall come into operation on the 1st February, 1927.

Government Notice No. 10, under Native Authority Ordinance 1926 (No. 18 of 1926), schedules specified areas and indicates the manner in which the powers of the different authorities, superior and subordinate, are distributed according to provinces and districts.

Government Notice No. 14, under the Forest Ordinance 1926 (No. 32 of 1921), makes Rules cited as the Forest Rules 1927. Amends Rule 3 of the General Rules made under the Forest Ordinance 1921, dated 17th August, 1921, by the addition of the following : (d) If, in the opinion of the Conservator of Forests, felling of forest will jeopardise any natural water supply, the Conservator of Forests may, as regards the catchment area of that water supply :—

- (i) Prohibit any or all felling.
- (ii) Limit felling by area or quantity.

Government Notice No. 22, under the Indian Petroleum Act 1899, prescribes Rules cited as The Petroleum Rules 1927, which came into force from the 1st April, 1927, which classify the different kinds of petroleum, and the conditions under which it may be handled, tested and stored.

Government Notice No. 23, under the Ports Ordinance 1921 (No. 18 of 1921), makes Rules cited as the Ports Rules 1927, for the collection of port and light dues for dhows, anchorage fees, harbour trading licence fees, and the registration of canoes, open boats and partially decked boats, lighters, flats and cargo boats.

Government Notice No. 24, under the Merchant Shipping (Fees) Ordinance 1922 (No. 36 of 1922), prescribes that the fees payable under Government Notice No. 12 of 1925, of the 7th January, 1925, in respect of the issue of Bills of Health of Dhows, shall be levied and collected by Customs Officers instead of Port Officers.

Government Notice No. 25, under the Prisons Ordinance 1921 (No. 14 of 1921), declares the prisons established at certain specified places and cancels all previous declarations of prisons.

Government Notice No. 29, under the Customs Tariff Ordinance 1923 (No. 34 of 1923), exempts "cattle, sheep or goats imported for slaughter from the Belgian Congo to the Bukoba Province direct" from customs dues.

Government Notice No. 30, Proclamation No. 3 of 1927 under the Townships Ordinance 1920 (No. 10 of 1920), rescinds the declaration of the township of Shinyanga as from the 1st April, 1927, and amends Proclamation No. 26 of 1920 accordingly.

Government Notice No. 38, under the Indian Lunacy Act 1912 (No. 4 of 1912), establishes an asylum of the detention of female lunatics only in the newly erected asylum building at Dodoma, and appoints visitors.

Government Notice No. 46, under the Master and Servants Ordinance 1923 (No. 32 of 1923), makes Regulations cited the Employment of Children on Machinery Regulations 1927. These Regulations provide that no "child," boy or girl, under 16 years of age may be employed between the fixed and traversing parts of any machinery while the machinery is in motion, or clean any part of any machinery worked by water, steam, or other mechanical power or any place under any such machinery other than overhead mill-gearing while the machinery is in motion.

Government Notice No. 67, under the Townships Ordinance 1920 (No. 10 of 1920), makes Rules cited as the Mikindani Water Supply Rules 1927, applicable as from the 1st July, 1927, which prescribe charges for the different communities.

Government Notice No. 75, under the Births and Deaths Registration Ordinance 1926 (No. 20 of 1926), appoints the Registrar-General of Births and Deaths to be the Registrar of Births and Deaths for Dar-es-Salaam District.

Government Notice No. 76, under the Master and Servants Ordinance 1923 (No. 32 of 1923), prohibits, subject to the exception contained in Clause (iv), recruitment of natives in the area specified in the schedule prescribed, provides for the restriction and regulation of the recruitment of natives in the Ufipa District, the route to be followed by natives recruited in the Rungwe District, and cancels Government Notices Nos. 116 of 1925, 12, 55 and 87 of 1926.

Government Notice No. 77, under the Masters and Native Servants Ordinance 1923 (No. 32 of 1923), makes Regulations cited as the Master and Native Servants Regulations 1927, states the terms of contract of service, which include in the schedule the supply of rations and medical certification of fitness for employment.

Government Notice No. 108, under the Townships Ordinance 1920 (No. 10 of 1920), makes Rules cited as Townships (Vehicles) Rules 1927, which apply as from the 1st January,



1928. The Rules provide for, among others, the conditions under which rickshaws may be licensed, the medical examination and registration of rickshaw boys.

Government Notice No. 111, under the Townships Ordinance 1920 (No. 10 of 1920), makes Rules cited as The Townships (Rat-proofing of Buildings) Rules 1927, which came into force from the 1st September, 1927, and applies to all townships. The Rules lay down definite specifications for rat-proofing shops and stores, maintenance of rat-proof netting or materials, the destruction of rats, the collection and disposal of rat-attracting garbage and rubbish, and the storage of rat-attracting produce.

Government Notice No. 133, under the Application of Laws Ordinance 1920 (No. 7 of 1920), directs that the powers and duties of a Chemical Examiner to Government under Section 510 of the Indian Code of Criminal Procedure 1898, as applied to the Territory, shall be exercised and performed by the Deputy-Director of Laboratory Service and those of an Assistant Chemical Examiner by the Assistant Bacteriologist and the Analytical Chemist, or by the officer appointed by notice in the *Gazette* to carry out the duties of any of those officers, for the purposes of that section.

Government Notice No. 149, under the Townships Ordinance 1920 (No. 10 of 1920). Amendment of Townships Rules 1923 by adding after Rule 32—that no person shall sell, offer or expose for sale within a township any aerated water or ice manufactured in the Territory in premises outside the township unless such premises are approved in writing by the authority for such purposes.

Such approval may be withdrawn by the authority if at any time it appears to the authority that the premises have become unsuitable for such purposes.

#### ORDINANCE NO. 11 OF 1927.

##### An Ordinance to assist the Education of Africans.

Section 3 (1) describes the constitution of the Advisory Committee, which includes the Director of Medical and Sanitary Services.

#### (c) Financial.

Revenue	...	...	...	...	...	...	£7,077
Expenditure	...	...	...	...	...	...	£187,600

(See also Table II, page 173.)

## II.—PUBLIC HEALTH.

### (a) General Remarks.

This is the Eighth Annual Medical and Sanitary Report of the Tanganyika Territory, and the tenth year of the Civil Administration. During the year under review there was a pronounced increase in the non-native population, which is accounted for by additions to the Official staff and unofficial non-native immigration. From Tables I and II it will be observed that the proportion of increase is marked both as regards the European and Asiatic Staff. The sick, invaliding and death rates have maintained, if not improved, their position as compared with previous years.

The activities of the medical and sanitary organisations have undergone further expansion generally, and particularly in relationship to the African District Dispensers, Maternity and Child Welfare Clinics and Tribal Dressers, all of which units have proved their value and justified the money expended on them.

*African District Dispensers.*—An Assistant Medical Instructor was appointed during the year for the purpose of devoting more individual attention to the pupils, and acting as relief when the Medical Instructor proceeds on leave. There were 35 new pupils admitted during 1927, of which three were still under tuition at Tabora, and, excluding those who failed or were found unsuitable, 12 remained at the Dar-es-Salaam school at the end of the year.

The standard of efficiency naturally varies, but a useful type of practical worker is being evolved, who takes his duties seriously and is capable of administering intra-muscular and intravenous injections, which are of importance in the treatment of Syphilis, Yaws, Sleeping Sickness and Schistosomiasis. The utility of this section is not yet fully apparent, but it is clear from the above note that from 1929 onwards a marked impression on the incidence and mortality due to Ankylostomiasis and the diseases mentioned must result. Reports received from Administrative Officers and Medical Officers on the work performed by the African Dispensers are favourable, and indicate that they are proving of value to the district population.

*African District Sanitary Inspectors* (see page 36 of the Deputy Director of Sanitary Service's Report).—For the reasons stated under reference above, a fuller description of the training and functions of this group of Sanitary Inspectors has been given.

It is universally notorious that preventive medicine in application generally provokes an attitude hostile to sanitary progress—indeed, frequently, a passive if not active resistance ; but there can be no doubt that of recent years a definite advance has been effected through the support of an enlightened Government. There still remains, however, much to be achieved in this direction, more particularly in areas in which African Sanitary Inspectors are striving to promote health education and hygienic improvement amongst the indigenous population, and I cannot urge too strongly the importance of adequate support if our efforts are not to be partially nullified.

*Tribal Dressers.*—A total of 90 Tribal Dressers were trained and posted in the districts during the year under review, and it is expected from the estimates for the forthcoming year that this figure will be doubled. As a whole this unit has been favourably reported on by Administrative Officers, and the Native Authorities have shown keenness in providing funds for the necessary drugs, equipment, dispensaries and salaries, all the expenses being defrayed out of allocations from the Tribal Treasuries. From such returns as have been received it would appear that each Tribal Dresser treats an average out-patient attendance, more or less, of approximately 2,000 new cases per annum.

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## (1) GENERAL DISEASES.

Sixty-nine cases of malignant disease were recorded, as compared with 14 for the previous year. For the anatomical sites attacked see pages 177 and 178, Nos. 43-49 of Tables V and VI.

*Deficiency Diseases.*—There were only 37 new cases of Scurvy and 22 of Beri-beri recorded during the year, a decided reduction from previous years.

New cases—					1925.	1926.	1927.
Scurvy	...	...	...	...	164	209	37
Beri-beri	...	...	...	...	57	11	22

The improved organisation of the Labour Commissioner's Department, and the recognition by employers of labour of the fact that it is more economical to have on their estates healthy rather than sick labourers account almost entirely for the marked diminution in the incidence of deficiency disease.

A further improvement, the result partly of improved prison buildings, but, in my opinion, largely the cumulative effect of the new diet adopted during 1925 for long term prisoners, has been effected, as may be seen from the following figures :—

			1923.	1924.	1925.	1926.	1927.
Number of deaths	...	...	76	76	59	60	34
Daily average number of prisoners during the year	...	...	1,397·50	1,736·60	1,760·12	1,858·80	1,848·04
Total number of prisoners during year	...	...	7,571	9,947	9,091	8,460	7,710
Percentage of deaths to average number of prisoners	...	...	5·36	4·31	3·30	3·22	1·78
Percentage of deaths to total number of prisoners	...	...	1·00	0·76	0·65	0·70	0·44

The question of affording relief to the population in areas of low " vitamin " potential is under consideration.

*Nervous and Mental Diseases.*—

1926	...	...	...	...	...	...	4,035
1927	...	...	...	...	...	...	3,298

Of the above there were 21 cases of Locomotor Ataxia, 55 of Hemiplegia, 100 of various forms of Paralysis, 5 of General Paralysis of the Insane, 127 of other forms of mental alienation, and 268 of Epilepsy.

A correlation of the distribution of Syphilis and Yaws, and the incidence of the above phenomena, would be of interest, but this is not possible until a more elaborate statistical department than we possess at present is established.

*Diseases of the Circulatory System.*—

					1925.	1926.	1927.
Cases	...	...	...	...	1,199	1,383	1,349
Deaths	...	...	...	...	17	15	15
Percentage of cases to total cases	...	...	...	...	0·44	0·41	0·34
Percentage of deaths to total deaths	...	...	...	...	2·20	1·62	1·51

Whether or not the mass treatment of Syphilis and Yaws has exerted influence in the apparent steady reduction in the percentage of cases and deaths remains to be seen.



*Diseases of the Respiratory System.—*

						1926.	1927.
Cases	...	...	...	...	...	38,881	40,281
Deaths	...	...	...	...	...	148	149

Acute and Chronic Bronchitis showed 34,692 cases, Lobar and Broncho-pneumonia 855, with 125 deaths, and other Diseases of the Respiratory System 4,734.

The above group comprise 11·62 per cent. of total annual returns of diseases.

*Diseases of the Digestive System.—*

						1926.	1927.
Cases	...	...	...	...	...	53,762	66,475
Deaths	...	...	...	...	...	220	250

Of these deaths Ankylostomiasis accounted for 48·4 per cent., Diarrhœa and Enteritis 31·6 per cent. There can be little doubt, relating to the latter, that contaminated food and water, and the finer manifestations of deficiency diseases play a major part in the morbidity and mortality resulting from these conditions.

The Diseases of the Digestive System account for 16·76 per cent. and 25·20 per cent. of the total cases and deaths, respectively, for the In- and Out-patients treated in the Hospitals of the Territory.

The proposed campaign against Ankylostomiasis during the forthcoming year, the activities of the African District Sanitary Inspectors and the Tribal Dressers should effect ultimately a definite reduction of the above class of diseases.

*Ankylostomiasis.*—At the end of the year arrangements were in progress towards a campaign against Ankylostomiasis on an experimental, but comparatively large, scale. The rationale on which the experiment is based is the high incidence of Ankylostome, Ascarid and Cestode infestations, which three combined would return an average infestation rate of not less than 65 per cent. amongst the African general population. The drugs proposed for the purpose are Carbon Tetrachloride and Oil of Chenopodium, given at one time in separate capsules. This combination, as is well known, affects both the Hookworm and Round Worm, and, recently, has been observed to possess toxic properties against the Tape Worm. The intention is to use these drugs on a mass scale, without any preliminary fæcal examination, for the whole population, and 100,000 doses, in the first instance, are to be placed for sale at the Post Offices for the benefit of planters and settlers, for free issue to Government Departments, and through the District Officers to the Tribal Dressers for the treatment of the people. Definite test areas have been selected in which Sanitation Officers are to conduct treatment and record statistics. Suitable posters and leaflets in English and Kiswahili, giving details of dosage according to age, and the necessary sanitary precautions to be observed, have been drawn up and will be available at the Post Offices for distribution with each issue of the drugs. If the experiment proves successful, it is proposed to use, besides the staff of Medical Officers and Sub-Assistant Surgeons, the African Dispensers, African District Sanitary Inspectors, the staff of the Maternity and Child Welfare Clinics, and the Tribal Dressers to push the campaign, using approximately 500,000 treatments, one dose reckoned as a treatment, per annum.

*Schistosomiasis.*—

1924	...	...	...	...	...	...	...	182
1925	...	...	...	...	...	...	...	710
1926	...	...	...	...	...	...	...	1,025
1927	...	...	...	...	...	...	...	1,288

The menace of Schistosomiasis is becoming a more vital question from year to year. The distribution is widespread, and it would appear that the incidence is largely amongst



the children and youths, of whom an alarmingly large percentage are scholars at the various schools. Active treatment of the cases has been undertaken, but, unfortunately, with other important campaigns in hand, such as Yaws, Syphilis, Sleeping Sickness, Tuberculosis and Ankylostomiasis, it has not been possible for the staff to devote their attention towards other and fresh avenues of attack.

*Diseases of the Skin and Cellular Tissue.*—There has been no perceptible increase in the percentages of cases to total cases and deaths to total deaths, which, in view of the increased movements and activities of natives employed on plantation and major works, road and railway expansion, might be regarded as satisfactory.

*Affections produced by External Causes.*—Except to record the fact that the figures returned for the above conditions are large, comparison with the returns in detail for the previous year would hardly be accurate owing to the transference and re-classification of the data from the old tables to the new, *i.e.*, Tables V and VI of the model report. The circular received during February did not reach some members of the staff until well into the year 1926, when it was impossible to re-classify figures shown under “other affections produced by local causes,” according to the new sub-heads.

Railway extension, mining and the activities of the Public Works Department are probably responsible for the increase in total over the 1926 figures.

						Cases.	
						1926.	1927.
Burns (by Fire) ...	...	...	...	...	...	460	1,807
Burns (other than by Fire) ...	...	...	...	...	...	66	227
Wounds (by Cutting or Stabbing Instruments) ...	...	...	...	...	...	3,230	6,426
Wounds (by Fall) ...	...	...	...	...	...	1,784	8,894
Wounds (in Mines or Quarries) ...	...	...	...	...	...	249	817
Wounds (by Machinery) ...	...	...	...	...	...	1,349	1,322
Wounds (Crushing, <i>e.g.</i> , Railway Accidents, etc.) ...	...	...	...	...	...	18	536
A.—Dislocation ...	...	...	...	...	...	10	53
B.—Sprain ...	...	...	...	...	...	142	996
C.—Fracture ...	...	...	...	...	...	178	367
Other Injuries ...	...	...	...	...	...	8,728	12,746
Other Affections produced by Local Causes ...	...	...	...	...	...	3,405	2,587
						<hr/> 19,619	<hr/> 36,778

## (2) COMMUNICABLE DISEASES.

*Anthrax.*—There were a total of 128 cases. No less than 122 in the Singida district, the others at Mwanza, Manyoni and Kondoa-Irangi. During the previous year the Singida area returned 98 cases out of 110. There were only three deaths recorded.

### *Epidemic Cerebro-Spinal Meningitis.*—

						1926.	1927.
Cases ...	...	...	...	...	...	14	8
Deaths ...	...	...	...	...	...	10	6

### *Chickenpox.*—

						1926.	1927.
Cases ...	...	...	...	...	...	560	449
Death ...	...	...	...	...	...	—	1

The largest numbers of cases occurred at Tukuyu, and the distribution was mainly at Tabora, Dodoma, Kondoa-Irangi, Mbulu and Arusha, from most of which areas a similar incidence has been recorded during the past several years.

*Dengue.*—

					1925.	1926.	1927.
Cases	...	...	...	...	73	71	21
Death	...	...	...	...	—	—	1

Dar-es-Salaam 8 cases and Lindi 5. The other stations returned 1 each.

*Diphtheria.*—

					1925.	1926.	1927.
Cases	...	...	...	...	—	2	1
Deaths	...	...	...	...	—	2	—

*Dysentery.*—See the Deputy Director of Sanitary Service's Report on page 30.

						1926.	1927.
Amœbic	...	...	...	...	...	471	639
Bacillary	...	...	...	...	...	337	248
Unclassified, or due to other causes	...	...	...	...	...	177	450

*Encephalitis Lethargica.*—Nil.

*Malaria and Blackwater Fever.*—

Malaria—				1925.	1926.	1927.
Cases	...	...	...	27,277	29,856	29,673.
Deaths	...	...	...	35	41	40
Blackwater Fever—						
Cases	...	...	...	52	85	72
Deaths	...	...	...	15	19	16

It is at all events satisfactory, in view of the increased European and Asiatic population and the abnormal rainfall, to note that there has been a small reduction in the incidence of both Malaria and Blackwater Fever cases below the previous year.

Whilst the distribution of Blackwater Fever was wider, Dar-es-Salaam showed only 10 cases instead of 18, Tabora 16 instead of 19, and there were no cases from the Lupa River gold diggings in the Rungwe areas, whereas there were several during other years. Whether or no the establishment of the sale of Quinine to the public at Post Offices, which the Lupa gold diggers requested, should be done must remain a moot question for the moment.

					1925.	1926.	1927.
<i>Mumps.</i> —							
Cases	...	...	...	...	46	44	115

The main distribution was in northern portions of the Central and Northern Provinces.

*Plague.*—See the Deputy Director of Sanitary Service's Report on page 31.

No cases occurred in the Singida district during 1926, and only 5 cases with 2 deaths during 1927.

*Relapsing Fever.*—See the Deputy Director of Sanitary Service's Report on page 28.

					1925.	1926.	1927.
Cases	...	...	...	...	259	227	273
Deaths	...	...	...	...	5	6	5

The greater proportion occurred at Tukuyu, Tabora, Mwanza and Musoma, which returned 52, 39, 20 and 36 cases, respectively. The population of Tabora is approximately 24,000, and it is almost impossible to eradicate the ticks in an area covered by some 6,000 huts by any immediate measure.

*Smallpox and Vaccination.*—See also the Deputy Director of Sanitary Service's Report, page 28.

During 1921 a sum of £400 was sanctioned for the local manufacture of vaccine lymph. By this means we issued 140,175 doses for our own consumption, and sold to the Zanzibar Government 33,500 doses. As a consequence we came out £216 to the good, over and above the £400 originally allocated, during the year 1921.

The total number of cases of Smallpox for the years 1920–27, inclusive, is 4,817, distributed as follows :—

1920.	1921.	1922.	1923.	1924.	1925.	1926.	1927.	Total.
1,823	421	832	217	30	1,388	22	84	4,817

The total number of Vaccinations performed during the same period, with lymph manufactured by the Dar-es-Salaam Laboratory, was 1,113,029. The estimated population of the Territory is 4,137,000, and therefore, approximately, 26 per cent. of the population has now been vaccinated.

*Trypanosomiasis.*—See the Sleeping Sickness Officer's Report on page 129.

*Tuberculosis.*—Total number of In- and Out-patients treated at the various hospitals, not including Dr. Davies' district figures, are shown below. Of the figure 651, 633 were new cases and 18 remained from the previous year.

					1925.	1926.	1927.
Cases	...	...	...	...	382	444	651
Deaths	...	...	...	...	70	81	65

A settlement was opened for In- and Out-patients at Kibongoto, in the Moshi District. The special Medical Officer in charge also conducted a preliminary survey of the Pare, Marangu and Ussere areas, and brought to light 281 cases of mixed Tuberculosis, 139 of which were pulmonary and 123 other forms. The Kibongoto settlement and hospital were established during September, and a total of 19 In-patients, 17 of whom were pulmonary cases, were admitted during the remainder of the year. The buildings are to be extended to accommodate about 50 In-patients during 1928.

It would appear from Dr. Davies' reports that subsidiary centres, one of which would require the services of another Medical Officer, will be required shortly.

An interesting section by Dr. Wilcocks, who is assisting the Senior Sanitation Officer, Dar-es-Salaam, may be found on page 63.

The figures in this report, *i.e.*, 20 cases and 7 deaths, are not included in Tables V and VI, but are returned in the Table showing the Incidence of Tuberculosis on page 34.

#### YAWS AND SYPHILIS.

A wider field has been embraced in the treatment of Yaws and Syphilis. A larger number of Medical Missions have undertaken treatment with drugs and equipment supplied by the Medical Department, and a total of 20,972 cases have thus been treated. The total



dealt with during the year is 120,374 cases of Yaws and 20,810 of Syphilis, of which the distribution and figures are shown tabulated :—

STATION.	YAWS.	SYPHILIS.	STATION.	YAWS.	SYPHILIS.
ARUSHA.. .. .	4,363	177	Brought forward .. ..	81,082	9,091
Kibaya .. .. .	90	21	MOROGORO—		
Mbulu .. .. .	105	15	Kisaki .. .. .	628	282
BAGAMOYO .. .. .	5,192	560	*Kongwa .. .. .	4	3
BUKOBA .. .. .	1,808	3,083	MOSHI .. .. .	1,575	95
Biharamulo .. .. .	3,834	646	MWANZA .. .. .	1,880	2,675
DAR-ES-SALAAM .. .. .	8,116	268	Maswa .. .. .	6	34
* .. District	76	6	Musoma .. .. .	1,805	1,011
Mafia .. .. .	442	145	NAMANYERE .. .. .	115	59
DODOMA .. .. .	90	62	PANGANI .. .. .	832	31
Manyoni .. .. .	30	19	Handeni .. .. .	141	—
Mpwapwa .. .. .	103	8	SONGEA .. .. .	1,409	167
Singida .. .. .	470	85	TABORA .. .. .	1,309	957
IRINGA .. .. .	65	33	Kahama .. .. .	1,213	462
Njombe .. .. .	106	31	„ District .. .. .	4,923	758
*Tosamaganga .. .. .	111	11	Negezi .. .. .	106	63
KASANGA .. .. .	666	159	Nzega .. .. .	327	212
*Karema .. .. .	230	107	*Ndala .. .. .	509	361
KIGOMA.. .. .	2,835	241	Shinyanga .. .. .	534	470
Kasulo .. .. .	1,773	838	Kizumbi .. .. .	218	238
Kibondo .. .. .	3,272	94	*Sekonge .. .. .	8	149
Ujiji .. .. .	600	174	*Ipole .. .. .	17	274
KILWA .. .. .	2,422	518	*Usoke .. .. .	356	695
Kibata .. .. .	2,096	104	TANGA .. .. .	1,631	401
Liwale .. .. .	487	13	*Korogwe .. .. .	578	1,530
„ Sl. Sick Area .. .. .	176	—	*Kwa Mkowa .. .. .	34	8
KONDOA-IRANGI .. .. .	1,438	126	*Mkuzi .. .. .	755	111
Mkalama .. .. .	4,436	73	*Msalabani .. .. .	1,963	460
LINDI .. .. .	5,587	58	*Tongwe .. .. .	172	36
*Lulindi .. .. .	6,064	85	*Misozwe .. .. .	45	—
Mikindani .. .. .	7,600	809	*Kigonge .. .. .	285	—
*Newala .. .. .	3,828	30	TUKUYU .. .. .	326	43
Tunduru .. .. .	335	9	Igali .. .. .	34	4
LUSHOTO .. .. .	88	60	Mwaya .. .. .	5,001	115
MAHENGE .. .. .	9,482	24	UTETE .. .. .	8,482	15
MOROGORO .. .. .	1,018	377	*Sophi .. .. .	746	—
Kilosa .. .. .	1,648	22	*Ifakara .. .. .	1,325	—
Carried forward .. ..	81,082	9,091	TOTAL .. .. .	120,374	20,810

\* Cases treated by the Staff of Medical Missions.

Whilst the numbers of cases treated show an increase from year to year, it is reported by independent observers, who have been resident for some time in certain districts in which intensive effort has been made, that whereas previously there were numerous cases Yaws is now uncommon. I am of opinion that another five years of effort is required before the widespread endemicity of Yaws may be regarded as reduced to the sporadic state—in other words, that between 600,000 to 700,000 cases still remain to be treated.

The figures for the five years 1923–27 are as follows :—

	Yaws.	Syphilis.
1923 ... .. .	3,616	2,667
1924 ... .. .	20,751	4,347
1925 ... .. .	75,638	11,829
1926 ... .. .	97,807	17,483
1927 ... .. .	120,374	20,810
Totals ... .. .	318,186	57,136

TABLE SHOWING TOTAL CASES, PERCENTAGES OF GROUPS TO TOTAL CASES TREATED, DEATHS AND PERCENTAGE OF DEATHS TO TOTAL NUMBER OF DEATHS.

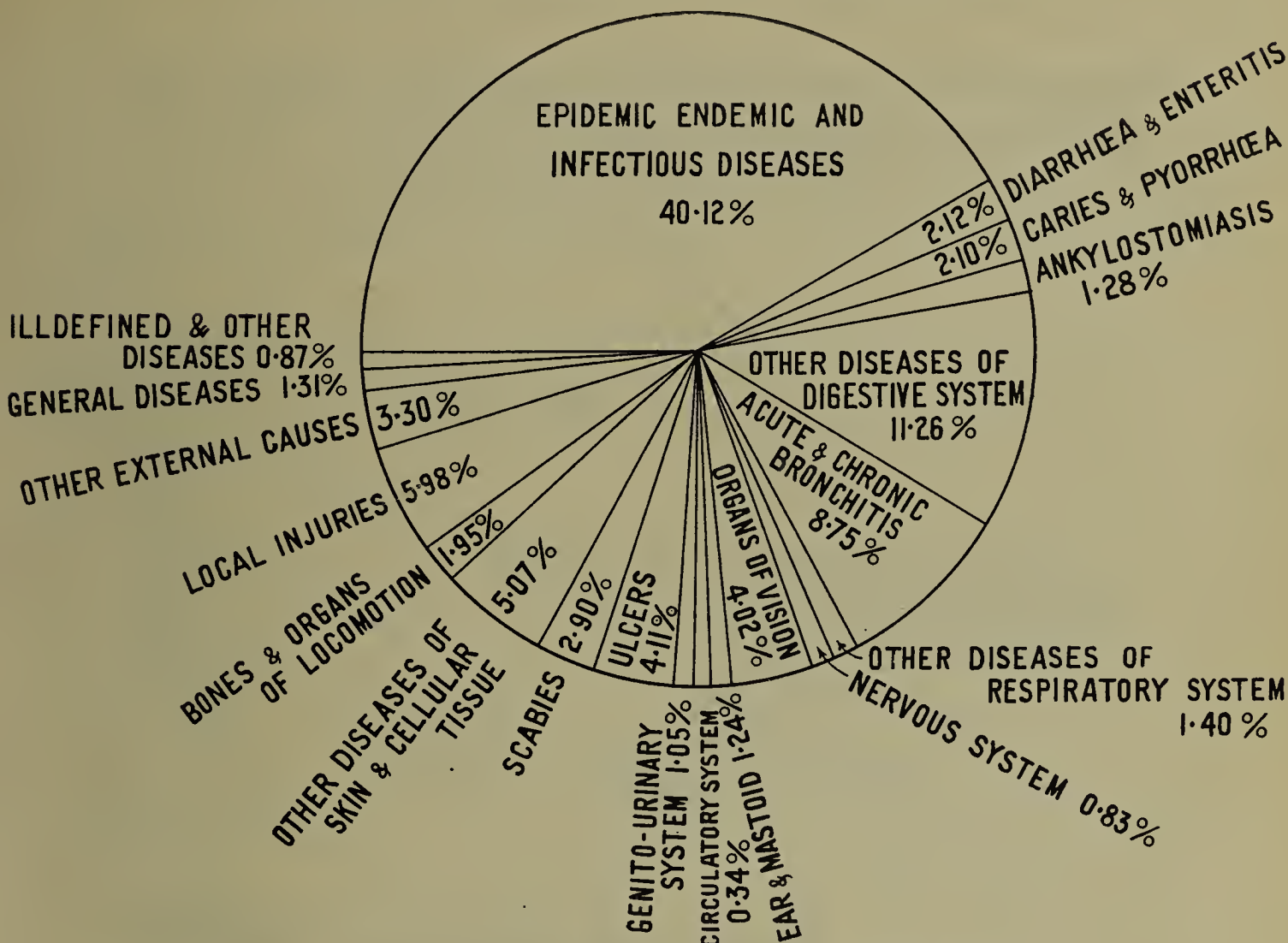
	Cases.		Deaths.		Percentage to total number of cases treated.		Percentage of deaths to total number of deaths.
	1926.	1927.	1926.	1927.	1926.	1927.	
Epidemic, Endemic and Infectious Diseases	134,712	159,091	298	256	40.30	40.12	32.07
General Diseases .. .. .	3,539	5,183	52	59	1.06	1.31	5.59
Diseases of the Nervous System .. .. .	4,035	3,298	22	34	1.21	0.83	2.40
Organs of Vision .. .. .	12,155	15,936	3	1	3.64	4.02	0.32
Ear and Mastoid Sinus .. .. .	4,296	4,932	—	1	1.21	1.24	—
Circulatory System .. .. .	1,383	1,349	15	15	0.41	0.34	1.62
Acute and Chronic Bronchitis .. .. .	34,890	34,692	11	10	10.43	8.75	1.18
Lobar and Broncho-pneumonia .. .. .	741	855	126	125	0.22	0.21	13.56
Other Diseases of the Respiratory System .. .. .	3,250	4,734	11	14	0.97	1.19	1.18
Caries and Pyorrhœa .. .. .	5,199	8,350	—	—	1.55	2.10	—
Diarrhœa and Enteritis .. .. .	5,664	8,407	29	79	1.70	2.12	3.12
Ankylostomiasis .. .. .	4,632	5,078	157	121	1.40	1.28	16.90
Other Diseases of the Digestive System .. .. .	38,267	44,640	34	50	11.45	11.26	3.66
Diseases of the Genito Urinary System .. .. .	3,423	4,150	30	34	1.02	1.05	3.22
Ulcers .. .. .	21,652	16,303	21	25	6.48	4.11	2.25
Scabies .. .. .	9,271	11,449	1	—	2.80	2.90	0.10
Other Diseases of the Skin and Cellular Tissue .. .. .	14,769	20,133	27	30	4.42	5.07	2.90
Diseases of Bones and Organs of Locomotion .. .. .	6,890	7,739	4	5	2.10	1.95	0.43
Local Injuries .. .. .	17,450	23,704	34	65	5.22	5.98	3.70
Other External Causes .. .. .	2,169	13,074	22	31	0.65	3.30	2.36
Ill-defined and other Diseases .. .. .	5,868	3,473	32	37	1.76	0.87	3.44
	334,255	396,570	929	992	100.00	100.00	100.00

SURGICAL OPERATIONS PERFORMED DURING 1927. THE FIGURES REPRESENT THE  
NUMBER OF OPERATIONS CONDUCTED WITH OR WITHOUT GENERAL ANÆSTHETIC.

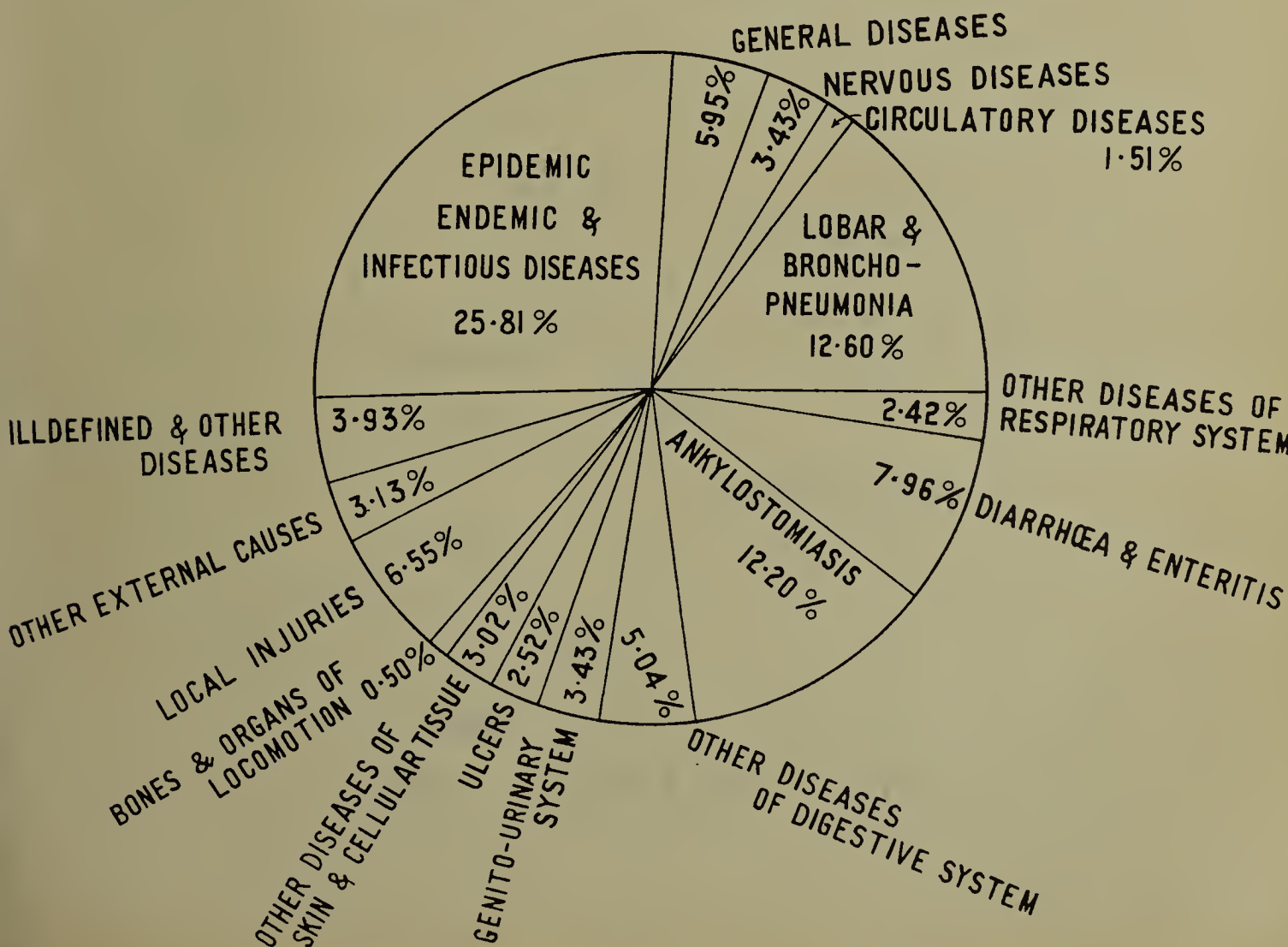
BONES, OPERATION :		Brought forward .. ..	816
Fractures, simple .. ..	35		
" compound .. ..	13	ADENECTOMY :	
Osteotomy .. ..	2	Cervical .. ..	1
Resection .. ..	21	Others (including unclassified) ..	2
Others (unclassified) .. ..	26		
CHEST, OPERATIONS ON :		AMPUTATIONS :	
Breast abscess, incision of .. ..	5	Hand .. ..	8
Thoracotomy .. ..	3	Arm .. ..	19
LAPAROTOMY :		Leg .. ..	30
Abdomen, penetrating wound of ..	2	Foot .. ..	8
Abscess of liver, laparotomy-hepato-		Digits .. ..	38
tomy .. ..	1	Thigh .. ..	5
" " aspiration .. ..	1	Unclassified .. ..	1
Appendectomy with local peritonitis	2	JOINTS, OPERATIONS ON :	
Appendix, abscess .. ..	2	Reduction of dislocation .. ..	18
Exploratory .. ..	1	Others (including unclassified) ..	21
Fibroids .. ..	1	MUSCLES AND TENDONS, OPERATIONS	
Intestinal obstruction .. ..	1	ON :	
Broad ligament cysts .. ..	1	External hæmorrhoids .. ..	9
Ovarian cystectomy .. ..	1	MISCELLANEOUS :	
Paracentesis abdominalis .. ..	5	Abscess, treatment of .. ..	93
Others (including unclassified) ..	6	Cysts .. ..	18
OBSTETRICAL :		Elephantiasis, treatment of ..	92
Abortions .. ..	3	Fistulous tracts .. ..	2
Births, forceps operations .. ..	15	Neoplasms, excision of, benign ..	72
" abnormal presentations ..	4	" " malignant .. ..	12
Repairs of perineum .. ..	2	Removal of foreign body .. ..	7
Others (including unclassified) ..	23	Skin graft .. ..	27
GENITO-URINARY TRACT :		Tooth extractions .. ..	17
Circumcisions .. ..	160	Ulcers, treatment of .. ..	41
Curettage uteri .. ..	9	Varicose veins, treatment of ..	1
Hæmatocele .. ..	15	Wounds, gunshot .. ..	3
Hydrocele, single, radical cure ..	239	" others .. ..	29
" double, " " .. ..	7	Various other minor operations ..	56
Hæmatoma .. ..	1	Others (including unclassified) ..	82
Orchidectomy .. ..	12	EAR, OPERATIONS ON :	
Urethrotomy, external .. ..	5	Mastoid operations .. ..	2
Others (including unclassified) ..	27	EYE, OPERATIONS ON :	
HERNIOTOMY :		Cataract, extraction of .. ..	9
Inguinal, single .. ..	147	Enucleation .. ..	10
" double .. ..	1	Lid operations .. ..	2
Femoral .. ..	1	Removal of foreign body .. ..	2
Strangulated .. ..	14	Others (including unclassified) ..	5
Others (including unclassified) ..	2	NOSE AND THROAT, OPERATIONS ON :	
Carried forward .. ..	816	Tonsillectomy .. ..	5
		Others (including unclassified) ..	5
		TOTAL .. ..	1,568



THE PROPORTION OF EPIDEMIC, ENDEMIC, INFECTIOUS, SYSTEMIC, AND OTHER DISEASES SHEWN AS PERCENTAGES OF TOTAL CASES TREATED AT HOSPITALS AND DISPENSARIES.

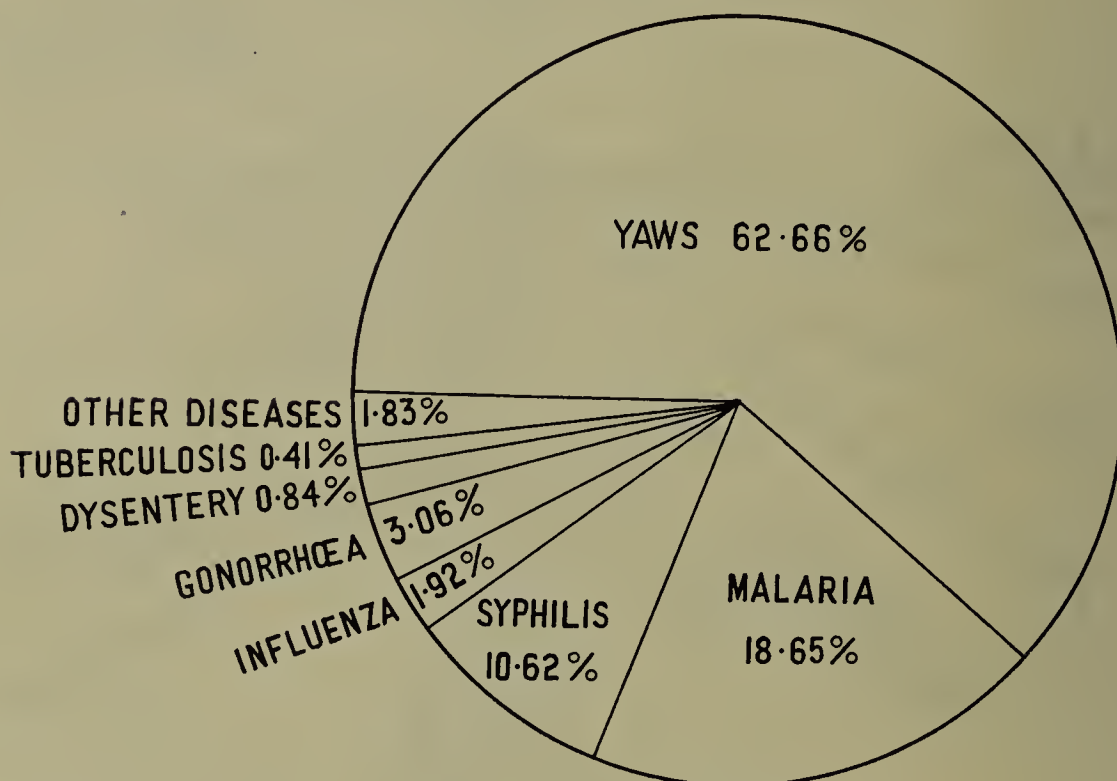


TOTAL INCIDENCE - 396570

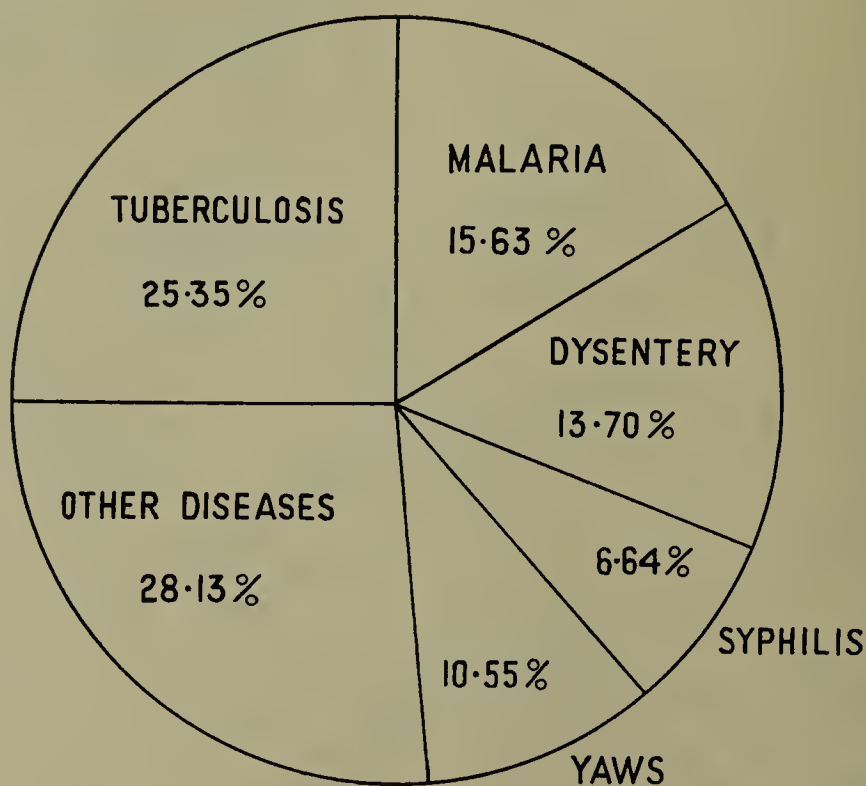


TOTAL DEATHS - 992

PROPORTION IN PERCENTAGES OF EPIDEMIC, ENDEMIC AND  
INFECTIOUS DISEASES, IN AND OUT PATIENTS, TREATED  
AT HOSPITALS AND DISPENSARIES.



TOTAL INCIDENCE - 159091



TOTAL DEATHS - 256

## (b) Vital Statistics.

## (1) GENERAL NATIVE POPULATION.

The most recent estimate of the population of the Territory is computed at 4,319,000. No reliable statistics relating to Birth, Death and Infant Mortality Rates are available at present.

## (2) GENERAL EUROPEAN POPULATION.

Acknowledgment is made to the Registrar-General of Births and Deaths for a return of the registered deaths, a total of 35, which are summarised as follows :—

Affection of the Lungs	...	...	1	Malaria	...	...	...	4
Ankylostomiasis	...	...	1	Motor-car accident	...	...	...	1
Blackwater Fever	...	...	6	Natural causes	...	...	...	3
Cancer	...	...	2	Peritonitis	...	...	...	2
Cardiac Ascites	...	...	1	Pneumonia	...	...	...	3
Convulsions	...	...	1	Sudden death—cause unknown	...	...	...	1
Gastro-enteritis	...	...	1	Typhoid Fever	...	...	...	2
Diarrhoea	...	...	1	Tuberculosis—Pulmonary	...	...	...	1
Heart Failure	...	...	4					

## (3) EUROPEAN OFFICIALS.

*Deaths.*—There were 5 deaths among European Officials, 4 of them being due to disease and 1 to accident.

	1925.	1926.	1927.
Malaria	1	—	1
Blackwater Fever	1	2	—
Myocarditis, Pericarditis, Antheroma	—	1	—
Phthisis	—	1	1
Pneumonia	1	—	1
Heart Failure supervening Appendicitis...	1	—	—
Heart Failure	1	—	—
Acute Pyæmia	1	—	—
Accident—killed while hunting	—	—	1
Relapsing Fever	—	—	1
	6	4	5

*Invalidings.*—Thirteen European Officials were invalided during the year, as compared with 16 and 13 during the two preceding years.

	1925.	1926.	1927.
Blackwater Fever	—	1	2
Tuberculosis (Pulmonary)	—	1	2
Neurasthenia	4	1	3
Delusional Insanity	1	—	—
Intra-ocular Hæmorrhage	1	—	—
Delusions	2	—	—
Injury to Leg (gunshot wound)	1	—	—
Tabes Dorsalis	1	—	1
Melancholia	1	—	—
Symptoms pointing to Renal Calculus	1	—	—
Carried forward	12	3	8

	1925.	1926.	1927.
Brought forward ... ..	12	3	8
Chronic recurring Appendicitis ... ..	1	1	—
Fractured Thigh ... ..	—	—	1
Epilepsy ... ..	—	—	1
Chronic Maxillary Antrum Abscess ... ..	—	—	1
Chronic Duodenal Ulcer ... ..	—	—	1
Suppurative Phlebitis ... ..	—	1	—
*Aortic Aneurism ... ..	—	1	—
Inflammation of the Appendix ... ..	—	1	—
Chronic Synovitis ... ..	—	1	—
„ Colitis ... ..	—	1	—
General Debility ... ..	—	1	—
Debility following Enteric and Malaria ... ..	—	1	—
Depressed Fracture of the Orbit ... ..	—	1	—
Indifferent health following Typhoid ... ..	—	1	—
Inguinal Hernia (left) ... ..	—	1	—
Perianal Fistula ... ..	—	1	—
Cerebellar Thrombosis ... ..	—	1	—
Injuries—mauled by leopard ... ..	—	—	1
	13	16	13

\* Died at Mombasa on the way to England.

#### (4) ASIATIC OFFICIALS.

*Deaths.*—There were 17 deaths among Asiatic Officials, all of them being due to disease.

	1925.	1926.	1927.
Blackwater Fever ... ..	5	2	7
Pneumonia ... ..	1	2	3
Fatty Degeneration of the Heart ... ..	1	—	—
Acute General Peritonitis supervening Appendicitis ... ..	1	—	—
Tubercular Meningitis ... ..	1	—	—
Asthma and Bronchitis ... ..	1	1	—
Cerebral Malaria ... ..	—	1	3
Typhoid Fever ... ..	1	—	—
Pulmonary Tuberculosis ... ..	—	1	—
Cardiac Disease ... ..	—	—	1
Cirrhosis of Liver ... ..	—	—	1
Peritonitis ... ..	—	—	1
Erysipelas ... ..	—	—	1
	11	7	17

*Invalidings.*—Ten Asiatic Officials were invalided during the year.

	1925.	1926.	1927.
Neurasthenia ... ..	1	—	—
Blackwater Fever ... ..	1	—	1
Heart Disease ... ..	2	—	—
Pulmonary Tuberculosis ... ..	1	2	2
Carried forward ... ..	5	2	3



	1925.	1926.	1927.
Brought forward ... ..	5	2	3
Chronic Bronchitis ... ..	—	1	—
„ „ and Emphysema ... ..	1	1	—
Anæmia, Debility and Chronic Bronchitis ... ..	1	—	—
Chronic Gastric Ulcer ... ..	1	—	1
Disease of Gall Bladder ... ..	—	1	—
Gastritis ... ..	—	1	—
Malaria and Relapsing Fever ... ..	—	1	—
Rheumatic Fever ... ..	—	1	—
Old Age ... ..	—	1	—
Cerebral Hæmorrhage ... ..	—	1	—
Hypochondriasis ... ..	—	1	—
General Debility and Muscular Rheumatism ... ..	—	1	—
Chronic Asthma ... ..	—	—	1
General Weakness following Spreading Cellulitis ... ..	—	—	1
Pneumonia ... ..	—	—	1
Chronic Malaria ... ..	—	—	1
Peripheral Neuritis, Chronic Malaria and, Neuras- thenia ... ..	—	—	1
Spastic Paraplegia ... ..	—	—	1
	8	12	10

TABLE I.

SICK, INVALIDING AND DEATH RATES, EUROPEAN OFFICIALS, 1925, 1926 AND 1927.

(For the three Principal Towns and the Whole Territory.)

	Dar-es-Salaam.			Tabora.			Tanga.			Whole Territory.		
	1925.	1926.	1927.	1925.	1926.	1927.	1925.	1926.	1927.	1925.	1926.	1927.
1. Total number of Officials Resident	370	398	424	104	111	129	50	62	71	855	983	1,038
2. Average number Resident ..	247	268	283	57	59	78	50	62	58	618	728	756
3. Total number on Sick List ..	251	276	288	63	47	109	63	48	36	646	662	754
4. Total number of Days on Sick List..	2,156	2,148	2,365	418	255	821	512	347	319	4,750	4,980	5,972
5. Average daily number on Sick List ..	5.90	5.88	6.48	1.14	0.69	2.25	1.40	0.95	0.87	13.01	13.64	16.36
6. Percentage of Sick to average number Resident	2.39	2.19	2.29	2.00	1.16	2.88	2.80	1.53	1.50	2.10	1.87	2.16
7. Average number of Days on Sick List for each Patient	8.59	7.78	8.21	6.63	5.42	7.53	8.13	7.23	8.86	7.35	7.52	7.92
8. Average Sick Time to each Resident	8.73	8.01	8.36	7.33	4.32	10.49	10.24	5.60	5.50	7.68	6.83	7.90
9. Total number Invalided ..	9	14*	8	—	—	2	2	—	1	13	16	13
10. Percentage of Invalidings to Total Resident	2.43	3.52	1.89	—	—	1.55	4.00	—	1.41	1.52	1.62	1.25
11. Total Deaths ..	1	1	2	1	—	—	1	—	—	6	4	5
12. Percentage of Deaths to Total Resident	0.27	0.25	0.47	0.96	—	—	2.00	—	—	0.70	0.40	0.48
13. Percentage of Deaths to average number Resident	0.40	0.37	0.71	1.75	—	—	2.00	—	—	0.97	0.54	0.66
14. Number of Cases of Sickness contracted away from Residence	—	—	—	—	—	11	—	—	—	29	20	47

\* 1 died at Mombasa *en route* for England.



TABLE II.

SICK, INVALIDING AND DEATH RATES, ASIATIC OFFICIALS, 1925, 1926 AND 1927.  
(For the three Principal Towns and the Whole Territory.)

	Dar-es-Salaam.			Tabora.			Tanga.			Whole Territory.		
	1925.	1926.	1927.	1925.	1926.	1927.	1925.	1926.	1927.	1925.	1926.	1927.
1. Total number of Officials Resident..	701	668	780	267	273	294	94	100	93	1,427*	1,524*	1,591*
2. Average number Resident .. ..	540	562	642	154	182	230	94	100	87	1,037*	1,171*	1,251*
3. Total number on Sick List .. ..	1,616	1,169	673	541	647	434	171	195	228	2,776	2,436	1,847
4. Total number of Days on Sick List..	4,939	5,845	3,032	2,015	2,712	1,649	1,005	1,226	1,089	10,017	12,040	8,044
5. Average Daily number on Sick List..	13.53	16.01	8.31	5.52	7.43	4.52	2.75	3.36	2.98	27.44	32.98	22.04
6. Percentage of Sick to average number Resident	2.51	2.84	1.29	3.58	4.08	1.96	2.93	3.26	3.43	2.64	2.73	1.76
7. Average number of Days on Sick List for each Patient	3.06	5.00	4.51	3.72	4.19	3.79	5.88	6.29	4.78	3.60	4.94	4.36
8. Average Sick Time to each Resident..	9.15	10.40	4.72	13.08	14.90	7.16	10.69	12.26	12.52	9.66	10.28	6.43
9. Total number Invalided .. ..	6	10	7	—	—	—	2	1	2	8	12	10
10. Percentage of Invalidings to Total Resident	0.86	1.49	0.90	—	—	—	2.13	1.00	2.15	0.56	0.79	0.63
11. Total Deaths .. ..	5	4	3	5	2	6	1	—	1	11	7	17
12. Percentage of Deaths to Total Resident	0.71	0.59	0.38	1.87	0.73	2.04	1.06	—	1.08	0.77	0.46	1.07
13. Percentage of Deaths to average number Resident	0.93	0.71	0.47	3.25	1.10	2.61	1.06	—	1.15	1.06	0.59	1.36
14. Number of Cases of Sickness contracted away from Residence	—	—	—	—	—	—	—	—	—	17	8	2

\* Approximate only. Accurate figures not available.



TABLE IV.

MORBIDITY RATES FOR MALARIA AND BLACKWATER FEVER AMONGST OFFICIALS—TANGA.

		EUROPEAN OFFICIALS.						ASIATIC OFFICIALS.									
		Total days off duty.		Days off duty for Malaria.		Days off duty for B.W. Fever.		Total days off duty.			Days off duty for Malaria.			Days off duty for B.W. Fever.			
1925.	1926.	1927.	1925.	1926.	1927.	1925.	1926.	1927.	1925.	1926.	1927.	1925.	1926.	1927.	1925.	1926.	1927.
January ..	85	28	46	26	7	—	—	—	160	140	50	63	89	11	—	—	—
February ..	41	27	46	9	—	—	—	—	86	112	44	53	64	23	—	1	—
March ..	60	4	37	33	—	—	—	—	91	80	52	44	23	12	—	30	5
April ..	41	13	12	—	—	7	—	—	62	56	67	59	20	43	—	—	—
May ..	21	9	59	4	—	53	—	—	23	118	212	16	73	99	—	—	—
June ..	42	29	10	8	10	10	—	—	97	134	102	40	102	70	—	—	—
July ..	52	61	1	—	28	1	—	—	71	142	87	25	66	21	—	—	—
August ..	55	33	1	—	4	—	—	—	86	106	75	34	38	10	—	—	—
September ..	40	34	14	—	8	—	—	—	52	75	118	20	31	30	—	5	—
October ..	15	20	10	—	7	3	—	—	103	94	58	34	3	20	—	25	—
November ..	28	29	—	17	9	—	—	—	52	72	52	20	15	33	—	—	—
December ..	32	56	87	19	—	—	—	—	133	89	198	44	25	63	2	—	—
TOTAL ..	512	343	323	116	73	74	—	—	1,016	1,218	1,115	452	549	435	2	61	5

TABLE V.

MORBIDITY RATES FOR MALARIA AND BLACKWATER FEVER AMONGST OFFICIALS—TABORA.

EUROPEAN OFFICIALS.														ASIATIC OFFICIALS.					
Total days off duty.				Days off duty for Malaria.			Days off duty for B.W. Fever.			Total days off duty.			Days off duty for Malaria.			Days off duty for B.W. Fever.			
1925.	1926.	1927.	1927.	1925.	1926.	1927.	1925.	1926.	1927.	1925.	1926.	1927.	1925.	1926.	1927.	1925.	1926.	1927.	
50	52	23	46	36	11	—	—	6	—	153	488	63	78	417	34	—	—	12	
32	45	64	6	28	14	—	—	3	—	139	366	87	92	278	53	—	54	18	
39	38	33	11	20	1	19	—	—	—	150	332	115	106	211	45	4	35	—	
36	17	58	29	1	4	5	—	—	—	172	268	56	96	165	11	23	42	4	
52	39	78	13	20	36	7	—	—	—	202	283	197	148	172	164	12	29	9	
53	47	87	8	14	48	5	28	13	31	203	281	174	143	255	103	—	—	26	
73	6	92	1	—	34	—	1	1	—	147	147	238	97	118	62	—	—	82	
9	7	88	—	6	6	—	—	—	1	103	156	152	75	91	41	—	—	26	
51	17	87	14	8	23	—	—	7	—	163	71	85	81	22	34	4	5	—	
6	16	99	3	—	36	—	—	4	—	173	131	155	56	60	42	—	20	—	
27	8	60	4	6	20	—	—	—	—	146	94	185	108	20	33	—	16	—	
14	7	52	1	—	22	—	—	—	—	267	60	141	162	16	32	—	—	—	
442	299	821	136	139	255	36	60	34	60	2,018	2,677	1,648	1,242	1,825	654	43	201	177	
Percentage of days off duty for Malaria and Blackwater Fever to total days off duty—														Percentage of days off duty for Malaria and Blackwater Fever to total days off duty—					
January ..	..	..	..	..	..	..	..	..	38.91	1925	..	..	..	..	..	..	..	63.67	
February ..	..	..	..	..	..	..	..	..	57.86	1926	..	..	..	..	..	..	..	75.68	
March ..	..	..	..	..	..	..	..	..	38.37	1927	..	..	..	..	..	..	..	50.42	
April ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
May ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
June ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
July ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
August ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
September ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
October ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
November ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
December ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
TOTAL ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	



### Recommendations.

1. The European Medical Staff, particularly the sanitation section, requires further strengthening.
2. The improvement of water supplies, drainage generally, and especially in connection with anti-malarial measures at Dar-es-Salaam and Tabora, are pressing needs.
3. Steps should be taken to obtain expert advice on the best method of sewage disposal for Dar-es-Salaam with a view to early adoption.
4. Every endeavour should be made to extend the Tribal Dresser system for district medical relief.

### III.—HYGIENE AND SANITATION.

REPORT BY DR. A. H. OWEN, B.A. (CAMB.), M.R.C.S. (ENG.), L.R.C.P. (LOND.),  
D.T.M. AND H. (CAMB.), DEPUTY DIRECTOR OF SANITARY SERVICE.

#### (a) General Review of Work done and Progress made.

The sanitary condition of the Territory has been satisfactorily maintained throughout the year. There are in all the townships defects which require remedying, but on the whole the state of the towns in Tanganyika compares favourably with other tropical countries where similar climatic and economic conditions prevail. Abnormal rains towards the end of the year caused flooding in the coastal towns, with a consequent increase in the number of mosquito-breeding places and in the incidence of malaria. Until a much more efficient system of surface drainage is provided, flooding of the low-lying areas must occur during periods of excessive rainfall. The Public Health Department can do little except provide temporary drains and systematically oil the flooded areas.

Sanitation Officers have been stationed during the year at Dar-es-Salaam, Tanga, Tabora and Mwanza, while qualified European Sanitary Superintendents have, in addition, been posted at Lindi, Moshi, Morogoro and Kigoma. In the other townships the Medical Officer acts as Sanitation Officer, and in most cases is provided with an English-speaking certificated African Sanitary Inspector to assist in the supervision of the township area. The increase in the population of the townships and the higher wages required by the sanitary labourers will necessitate an increase in the Vote for Sanitary Labour during the next financial year, and this has been provided for in the estimates for 1928-29.

Estimates have been prepared by the Public Works Department for water supplies at Dodoma, Mwanza, Tabora and Tanga, and for the improvement and extension of the supply at Dar-es-Salaam. The total shown in the draft estimates is £42,150, of which £2,750 has already been expended, and it is hoped that £21,000 will be spent on the water supplies of these five townships during the next financial year. The provision of better water supplies should not only result in improvement in the general health of the whole community, directly due to the substitution of pure water for water from polluted wells, but will also allow the Authorities to fill up wells and water holes which act as mosquito-breeding places. In addition, if sufficient standpipes are provided in the native quarter, it should be possible to abolish the very numerous small receptacles used by the native householder for storing water, which at present act as breeding places for domestic mosquitoes.

#### (1) *Preventive Measures.*

##### MOSQUITO AND INSECT-BORNE DISEASES.

29,638 cases of malaria were treated in Government Hospitals during the year, the figures for 1926 and 1925 were 29,856 and 27,277 respectively. Forty per cent. of cases reported during 1927 were classified as subtertian.

3,838 cases of all types of malaria were admitted as in-patients, of whom 40 died, a mortality rate of approximately 1 per cent., which is the same as for 1926. Twelve cases of Cerebral Malaria occurred, of whom eight died.

Abnormally heavy rains occurred on the coastal belt at the end of the year and the water table at Dar-es-Salaam remains dangerously near the surface. A heavy fall during the rainy season of 1928 will undoubtedly result in serious flooding in the residential areas of Dar-es-Salaam. The provision for surface drainage is quite inadequate and large open spaces such as golf links, football, cricket and hockey grounds, all flat and low lying, make the task of detecting and oiling potential mosquito-breeding places very difficult.

*Blackwater Fever.*—Seventy-one cases with 16 deaths were reported during the year, the figures for 1926 were 85 and 19.

*Sleeping Sickness.*—A separate report by the Sleeping Sickness Officer will be found on pages 129–138.

*Yellow Fever.*—No cases occurred during the year.

*Filariasis.*—368 cases were treated in Government Hospitals during the year ; 136 were admitted as in-patients and 4 deaths occurred.

*Dengue.*—Twenty-one cases of dengue were reported from all stations as compared with 73 and 71 for 1926 and 1925.

*Relapsing Fever.*—In spite of the fact that ticks are widespread along the main traffic routes in the Territory, it does not appear that the incidence of Relapsing Fever is increasing to any marked extent. 259 cases were treated in 1925, 227 in 1926, and 271 during the year under review.

Of the 271 cases treated in Government Hospitals during 1927, 212 were admitted as in-patients, of which 5 died.

The increased use of mechanical transport, particularly by Europeans, diminishes the danger of infection. On some of the routes it is still necessary to camp for the night, but it is anticipated that a sufficient number of tick-proof rest camps will be provided at an early date.

#### EPIDEMIC DISEASES.

No serious outbreak of dangerous infectious diseases occurred during the year. The total number of smallpox cases shows an increase over the figures for 1926, but in no district did the disease give rise to a serious epidemic.

During the early part of 1927 cases of smallpox were notified from fishing villages along the coast, the infection apparently having been introduced from Zanzibar. An intensive vaccination campaign together with quarantine regulations prevented any spread of the disease. Forty-six cases with 6 deaths were reported. A very mild form of smallpox occurred in the Mahenge district ; the disease was at first reported as chicken-pox, but subinoculation experiments on monkeys showed that the infection was smallpox, no deaths occurred. A further reference to this mild epidemic will be found on page 154 of this Report.

These two outbreaks were responsible for a total of 80 cases with 6 deaths. From the whole of the rest of the Territory only 4 cases with 2 deaths were reported.

A table showing the vaccinations performed follows :—

TABLE SHOWING VACCINATIONS PERFORMED DURING 1927.

District.	Number vaccinated.	Successful.	Failed.	Not seen again.
NORTHERN AREA :				
Bukoba .. .. .	49,238	—	—	49,238*
Mwanza .. .. .	635	68	—	567
Arusha .. .. .	5,508	2,613	2,786	109
Usambara .. .. .	10,734	7,166	3,008	560
Moshi .. .. .	23,279	15,837	2,430	5,012
CENTRAL AREA :				
Tabora .. .. .	40,980	13,578	9,335	18,067
Dodoma .. .. .	43,463	36,712	6,344	407
Kondoa-Irangi .. .. .	6,100	3,830	1,644	626
Morogoro .. .. .	8,993	4,826	1,971	2,196
SOUTHERN AREA :				
Iringa .. .. .	7,004	4,661	2,055	288
Mahenge .. .. .	2,279	1,853	97	329
Songea .. .. .	2,974	2,245	729	—
WESTERN AREA :				
Kigoma .. .. .	7,208	2,301	1,157	3,750
Ufipa .. .. .	6,269	2,462	3,681	126
Rungwe .. .. .	31,870	14,756	8,735	8,379
COASTAL AREA :				
Tanga .. .. .	2,587	609	680	1,298
Pangani .. .. .	2,608	1,956	652	—
Dar-es-Salaam .. .. .	10,427	1,238	633	8,556
Rufiji .. .. .	4,199	3,230	752	217
Kilwa .. .. .	11,504	9,424	2,080	—
Lindi .. .. .	5,330	3,087	1,881	362
Mafia Island .. .. .	—	—	—	—
Bagamoyo .. .. .	3,100	2,491	609	—
TOTAL .. .. .	286,289	134,943	51,259	100,087

\* The majority of these were re-examined, but reliable information as to the results of the vaccination is not available.

A total of seven cases of Cerebro-spinal Meningitis with six deaths were notified from four districts of the Territory.

The endemic plague area near Singida in the central province was responsible for the one small outbreak of plague reported during the year. Thirteen cases with ten deaths occurred ; the remainder of the Territory remained free.

Epidemic Influenza was not notified from any district during the first eleven months of 1927. Reports received at the end of the year stated that the Tanga district had become infected. The outbreak was still under investigation at the end of December and the figures when received will be included in the 1928 returns. A brief reference to this outbreak will be found in the report from the Sanitation Officer, Tanga, on page 77.

Minor outbreaks of Measles and Chickenpox occurred throughout the Territory, but in no case gave rise to any serious epidemic.



Tables showing the incidence of dangerous infectious diseases during the last five years and details of the outbreaks reported during 1927 follow :—

—			Smallpox.		Cerebro-spinal meningitis.		Plague.		Influenza.	
Year.			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
1923	..	..	217	33	101	89	39	26	1,933	291
1924	..	..	30	12	2	1	42	35	—	38
1925	..	..	1,388	466	6	3	44	27	692*	64
1926	..	..	22	—	8	4	6	6	1,552*	209
1927	..	..	84	8	7	6	13	10	—	—

\* Total cases not known.

*Enteric Fever.*—Twenty-seven cases with 6 deaths were reported from 8 districts during the year ; the figures for 1926 and 1925 were 15 cases with 2 deaths and 28 and no deaths from 7 and 11 stations respectively.

*Dysentery.*—1,332 cases diagnosed as dysentery were reported during the year and of these 410 were treated as in-patients of whom 35 died. The disease from which the in-patients suffered was classified as Amœbic 221 with 21 deaths. Bacillary 112 with 8 deaths and Undefined 77 with 6 deaths. The 922 out-patients are classified as follows : Amœbic, 415. Bacillary, 134. Undefined, 373. It is probable that a considerable proportion of the out-patients diagnosed as dysentery were cases of enteritis due to errors of diet or natives suffering from severe helminthic infections.

Twenty-four patients were treated for Hepatic Abscess, of which one died.



(Compiled from telegraphic returns received weekly from Medical Stations. The figures are frequently obtained from Native information, and are not always reliable.)

Districts.	Smallpox.				C.S.M.				Plague.				Influenza.				Popula- tion, 1921 Census.							
	1925.		1926.		1927.		1925.		1926.		1927.		1925.		1926.			1927.						
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.		Cases.	Deaths.					
NORTHERN AREA:																								
Bukoba ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	320,100
Mwanza ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	702,300
Arusha ..	3	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	97,700
Usambara ..	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	107,400
Moshi ..	1,362	461	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	158,200
CENTRAL AREA:																								
Tabora ..	10	2	10	—	2	1	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	502,100
Dodoma ..	2	—	—	—	1	1	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	270,900
Kondoa-Irangi ..	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	196,700
Morogoro ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	174,300
SOUTHERN AREA:																								
Iringa ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	104,800
Mahenge ..	1	—	—	—	34	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	74,600
Songea ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	148,200
WESTERN AREA:																								
Kigoma ..	8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	139,500
Ufipa ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	93,600
Rungwe ..	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	237,200
COASTAL AREA:																								
Tanga ..	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	86,700
Pangani ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	74,900
Bagamoyo ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	57,100
Dar-es-Salaam ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	149,100
Rufiji ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	83,200
Kilwa ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	84,000
Lindi ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	243,400
Mafia Island ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10,000
	1,388	466	22	—	84	8	6	3	8	4	7	6	44	27	6	6	13	10	692	64	1,552*	209	—	4,116,000

\* Total number of cases not known.

## HELMINTHIC DISEASES.

The Director of Medical and Sanitary Services, on page 12, has described the campaign which will be carried out in the near future against Ankylostomiasis and other helminthic infections. There is no doubt that much of the ill-health and inefficiency of the coastal natives is due to Ankylostomiasis. Dr. McKenzie's experiment, described on page 107 of the Annual Report for 1926, and the results at Muheza recorded on page 78 of this Report, show that marked improvement in the general health may be anticipated from mass treatment, even when this is not carried out under close medical supervision.

*Leprosy.*—Mr. Oldrieve, the Secretary of the British Empire Leprosy Relief Association, visited Dar-es-Salaam in April. Every Missionary body working in the Territory was invited to send representatives to meet him, free railway travelling being provided by the Government. A considerable number attended, and several interesting and instructive meetings were held. The general consensus of opinion was that compulsory segregation resulted in the concealment of early cases, and that leper settlements tended to become shelters for crippled cases unsuitable for treatment, while early cases did not come for treatment owing to the fear of detention. As a result of these discussions it was decided to provide two distinct kinds of accommodation for lepers, and the following circular was issued by the Secretariat, copies being sent to all Provincial Commissioners and to heads of the Missions :—

“ In order to improve the conditions under which patients suffering from leprosy are maintained, and to increase the facilities for treatment, it has been decided that the accommodation for leprosy cases should be of two distinct types :—

- (a) Treatment centres, where early cases and infectious cases likely to benefit by treatment can be maintained and treated. The deciding factor in fixing the sites for these should be facilities for treatment: they should be situated within easy reach of a Government Medical Officer or trained Missionary worker, in order that treatment may be continuous and carried out under proper supervision. These treatment centres should be made as attractive as possible, and while the Native Authorities might be expected to assist with funds for buildings and maintenance, the expenditure on drugs, dressings, extra diet and attendants should be met by the Medical Department or Missionary Societies.
- (b) The second type should be more of the nature of a leper village where crippled non-infectious cases or patients who are slightly infectious but unsuitable for treatment can be maintained. The admission of non-infective cases to these villages should be discouraged as far as possible, and any patients of this class whose friends or relatives can maintain them should be allowed to return to their homes. This type of leper settlement should be situated where water is easily obtainable, and where the soil is fertile and readily cultivated. Whenever possible the Native Authorities should be made responsible for the maintenance of these leper villages.”

2. Provincial Commissioners are requested to instruct the District Officers in their Provinces to consult the local representative of the Medical Department and any Missionary Societies interested in leprosy work in their districts, and to submit to the Director of Medical and Sanitary Services recommendations as to suitable sites for the two types of camps.

3. The recommendations should be accompanied by an estimate of the amount of accommodation required, the cost of construction and maintenance, and of the amount of financial assistance which can be given by the Native Treasury concerned for each type of camp.

4. In estimating the accommodation required, it should be noted that leprosy is, as a general rule, not acutely infectious, probably less so than tuberculosis, and that cases not acutely infectious may be allowed to live in their own homes and come up as out-patients for treatment, provided they are willing to carry out the simple precautions laid down by the Medical Officer, and attend regularly at a treatment centre. Compulsory segregation inevitably leads to concealment of early cases which are most amenable to treatment.

5. Opportunity should be taken to make it generally known that native lepers who come to Government or Mission Stations for treatment will not be detained without their consent, provided they carry out the instructions of the Medical Officer, and that if detained the period of detention will not exceed a limited number of months, as there is no longer any intention of compulsory segregation for life."

The Association has generously promised to assist Missionary bodies to provide accommodation for leper patients, and also to supply drugs and literature. It is too early, as yet, to estimate the effects of this change of policy, but in certain areas leper patients are coming forward in increasing numbers requesting treatment. Mr. Oldrieve's advice and suggestions were of great value, and the outlook for the future promises to be much more favourable than it has been in the past.



TABLE SHOWING INCIDENCE OF TUBERCULOSIS AT THE VARIOUS STATIONS IN THE TERRITORY DURING 1925, 1926 AND 1927.

	1925.				1926.				1927.			
	Pulmonary		All other Forms.		Pulmonary		All other Forms.		Pulmonary		All other Forms.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Arusha .. .. .	18	4	9	2	29	3	4	—	53	—	10	—
Bagamoyo .. .. .	—	—	—	—	—	—	—	—	—	—	42	—
Biharamulo .. .. .	—	—	—	—	1	1	—	—	1	—	2	1
Bukoba .. .. .	26	—	—	—	8	—	11	2	2	—	4	—
Dar-es-Salaam—												
European Hospital ..	1	1	—	—	7	1	—	—	6	1	1	1
Sewa Hadji Hospital ..	50	3	—	—	41	3	—	—	27	3	4	—
*Medical Officer of Health	—	—	—	—	—	—	11	2	9	6	—	—
*Private Practitioners ..	1	—	—	—	—	—	7	—	11	1	—	—
Dodoma .. .. .	2	—	—	—	—	—	7	3	5	1	2	2
Handeni .. .. .	—	—	—	—	1	—	—	—	3	—	2	1
Iringa .. .. .	—	—	—	—	1	1	—	—	1	—	3	1
Kahama .. .. .	—	—	—	—	—	—	2	—	1	—	2	1
Kasanga .. .. .	—	—	—	—	6	—	—	—	—	—	—	—
Kasulo .. .. .	—	—	—	—	3	—	1	—	—	—	—	—
Kibata .. .. .	—	—	—	—	7	—	—	—	—	—	6	—
Kibaya .. .. .	1	—	—	—	5	—	—	—	—	—	—	—
Kibondo .. .. .	—	—	—	—	—	—	—	—	3	1	1	—
Kibongoto .. .. .	—	—	—	—	—	—	—	—	40	—	11	—
Moshi District .. .. .	—	—	—	—	—	—	—	—	116	—	115	—
Kigoma .. .. .	10	2	1	1	4	1	1	1	3	—	2	1
Kilosa .. .. .	7	4	—	—	5	1	—	—	9	—	3	—
Kilwa .. .. .	—	—	3	—	—	—	—	—	—	—	3	—
Kisaki .. .. .	—	—	—	—	—	—	—	—	—	—	1	—
Kondoa-Irangi .. .. .	4	1	9	—	9	5	—	—	14	3	5	—
Lindi .. .. .	—	—	—	—	12	1	—	—	7	—	6	—
Lushoto .. .. .	10	2	—	—	11	3	—	—	1	—	—	—
Mafia .. .. .	—	—	—	—	—	—	—	—	5	1	—	—
Mahenge .. .. .	3	1	—	—	1	—	—	—	1	1	1	—
Malangali .. .. .	—	—	—	—	—	—	—	—	—	—	—	—
Manyoni .. .. .	—	—	—	—	1	—	—	—	—	—	—	—
Mbaya .. .. .	—	—	—	—	—	—	—	—	1	—	—	—
Mbulu .. .. .	2	2	—	—	6	3	—	—	21	3	3	—
Mikindani .. .. .	1	—	—	—	4	—	—	—	1	—	5	—
Mkalama .. .. .	—	—	3	—	2	—	9	—	4	—	1	—
Morogoro .. .. .	21	7	—	—	51	16	2	2	18	—	—	—
Moshi .. .. .	73	5	—	—	36	6	7	—	35	5	5	—
Mpwapwa .. .. .	—	—	—	—	—	—	—	—	1	—	—	—
Musoma .. .. .	1	—	—	—	4	2	3	1	5	—	4	—
Mwaya .. .. .	—	—	—	—	—	—	—	—	1	—	—	—
Mwanza .. .. .	7	4	—	—	6	—	—	—	33	5	8	1
Namanyere .. .. .	—	—	—	—	3	—	1	—	1	—	1	—
Nzega .. .. .	—	—	—	—	—	—	—	—	1	—	3	—
Pangani .. .. .	32	3	—	—	20	4	—	—	25	6	—	—
Shinyanga .. .. .	2	1	4	—	1	—	4	—	6	—	7	—
Singida .. .. .	—	—	1	—	1	—	13	1	9	—	9	—
Songea .. .. .	9	1	—	—	9	1	2	1	11	1	—	—
Tabora .. .. .	10	1	—	—	3	2	—	—	8	3	1	—
Tanga .. .. .	57	20	—	—	48	11	1	—	80	18	13	2
Tukuyu .. .. .	2	—	2	—	7	2	1	—	6	—	7	1
Tunduru .. .. .	—	—	—	—	—	—	—	—	3	1	—	—
Ujiji .. .. .	—	—	—	—	1	—	—	—	1	—	2	—
Utete .. .. .	—	—	—	—	—	—	3	1	—	—	—	—
Railhead Returns .. .. .	350	62	32	3	354	67	90	14	589	60	295	12
Miscellaneous Dispensaries, Missions, etc. .. .. .	—	—	—	—	—	—	—	—	1	—	—	—
TOTAL .. .. .	350	62	32	3	354	67	90	14	590	60	298	12

\* Not included in Tables V and VI.



## (2) *General Measures of Sanitation.*

The sanitation of the smaller townships is, as a general rule, maintained in a satisfactory condition. Incinerators are not infrequently constructed of unsuitable materials, and are liable to crack and become unserviceable after being in use for a short time, but these are gradually being replaced by more satisfactory structures.

The cesspit system in Dar-es-Salaam continues to give rise to considerable nuisance, particularly during the rainy season, when many cesspits are flooded and overflow. Even were the tanks and pumps belonging to the Health Office adequate to keep all cesspits at a proper level, the practice of discharging all sewage into the inner harbour of Dar-es-Salaam cannot be allowed to continue indefinitely. An additional sewer is to be constructed along Smuts Street, which will carry the overflow from the cesspits in one of the lowest lying parts of the residential area. This sewer, together with subsoil drainage, should result in a great improvement in the conditions in this area. The Public Works and Medical Departments have received instructions to furnish reports on the present conditions in Dar-es-Salaam, and it is hoped that these reports, when submitted, will result in the appointment of a Consulting Engineer to draw up a comprehensive scheme for the whole town. Provision has been made for improvements in the arrangements for motor transport for the removal both of household refuse and cess ; it will also be possible during 1928 to provide additional carts for use in the smaller townships.

*Sanitary Inspections.*—The routine inspection of the townships is regularly carried out by the Sanitation Officers or Medical Officers in charge. They are assisted by European Sanitary Superintendents and African Urban Inspectors and subordinate staff. Visits of inspection have been made during the year by either the Director of Medical and Sanitary Services, Deputy Director of Medical Service or Deputy Director of Sanitary Service to the following townships : Dodoma (twice), Manyoni, Singida, Iringa, Tukuyu, Mwaya, Mbaya, Malangali, Iringa, Kilosa, Mahenge, Tanga, Arusha and Moshi.

## (3) *School Hygiene.*

Regular inspections of the pupils at Government Schools are made by Sanitation Officers, Medical Officers and Health Visitors. From the reports received it appears that the general standard of cleanliness continues to improve, and that the health of the pupils is satisfactory.

## (4) *Labour Conditions.*

A full account of the labour conditions throughout the Territory is contained in the Annual Report of the Labour Commissioner. A steady improvement is taking place on plantations in housing, sanitation and food supplies. Employers find considerable difficulty in compelling natives to make proper use of latrines and the question of providing legislation, giving employers powers to punish labourers for offences against sanitary regulations, is under consideration. Provision has been included in the estimates for 1928-29 for one Medical Officer to be definitely seconded for work with the Labour Department. This officer will be available to give technical practical advice on questions concerning latrines, water supplies, etc., and his assistance should be of great value to employers of labour.

## (5) *Housing and Town Planning.*

Twelve meetings of the Central Town Planning and Building Committee were held during the year. The selection of suitable areas for Residential, Commercial and Native occupation has been completed for all the larger towns in the Territory. The work of the Committee is now mainly concerned with the selection of sites for Government offices and quarters and for individual commercial undertakings. During the year under review, in addition to Government buildings, sites were allocated for the Indian Central School and for the extension of the Native Quarter at Dar-es-Salaam.

There is plenty of privately owned land within the township of Dar-es-Salaam suitable for native residences, but the owners do not at present show any desire to develop their properties as Native residential areas. At Tanga, a new area suitable for residences of a European type, has been demarcated and land has been reserved for the future extension of the port and harbour.

Considerable delay has occurred in the town planning of Mwanza owing to the uncertainty regarding the exact line to be followed by the new railway and also to the question as to whether the port should be moved from its present position. These matters have now been settled, and it is hoped that it will be possible to improve conditions at Mwanza in the near future.

#### (6) *Food in relation to Health and Disease.*

With the exception of one small area in the Bukoba Province near Lake Victoria, the quantity of the native food supply in the Territory was satisfactory throughout the year under review.

It has been pointed out in previous reports that the normal diet of an African native in his own village is ill-balanced. The question is a difficult one. It was a common experience during the war to find that native carriers would willingly exchange a full ration of foodstuffs to which they were unaccustomed for a half ration or less of food which they knew. The solution appears to be to induce the native cultivator to grow sufficient quantities of a greater variety of indigenous foodstuffs than he does at present, including cereals, peas and beans, root vegetables, ground nuts and other oil-producing seeds together with fresh fruits and vegetables. This policy—in addition to the relaxation of the regulations controlling the killing of game by natives which it is proposed to bring into force shortly—would result in a far better diet than the average native has to-day. The concentration of natives from Sleeping Sickness areas into settlements, the sites for which are selected by Agricultural Surveyors, provides a very suitable field for experiment. Dr. Corson, who has been employed on Sleeping Sickness work for a considerable period, has been instructed to study recent methods of investigating food values, as carried out at the Rowlett and similar institutes, during his leave and on his return it is intended that he should be employed on a selected area and make extended investigations into the causes and prevention of deficiency diseases amongst the local native population.

#### (b) **Measures taken to spread the knowledge of Hygiene and Sanitation.**

Section C of this report, Training of Sanitary Personnel, contains a full account of the training of the two types of Native Sanitary Inspectors. Care is taken, during the courses of instruction, to impress on these natives that their work is educative and that they must explain the reasons why better latrines, clean water supplies and other sanitary improvements are a necessity in the villages. The excellent work done by the Education Department in the schools was described on page 35 of the Medical Annual Report for 1926. The increase in the work of the Medical Department, the presence of numbers of District Sanitary Inspectors and Tribal Dressers distributed throughout the Territory, together with the systematic instruction given to the rising generation in the schools, must eventually result in improvement in the conditions under which the natives live. The process may be a slow one but it should be sure. Some degree of compulsion is certainly necessary, but compulsion alone will not result in any permanent change in the habits of over four million African Natives.

#### (c) **Training of Sanitary Personnel.**

The training and duties of the African Sanitary Inspectors employed in the Territory have been discussed in previous Annual Reports. Considerable differences of opinion appear to exist as to the qualifications required by a Native Inspector in the Tropics. It is obvious that candidates for these posts who have a thorough knowledge of English



and have received a good general education will be more likely to profit by the special course of instruction in Hygiene and Sanitation. In the older Colonies candidates of this type may come forward in considerable numbers. In a country such as Tanganyika, where the education of the native population is in its infancy, they are difficult to obtain. An English speaking native with a fair general education has no difficulty in obtaining a post either in Government employment, with a commercial firm or on a plantation. It is not surprising, therefore, that the majority prefer to take a clerical post immediately rather than undergo a further period of training, with an examination to pass, before a post as Sanitary Inspector can be obtained. Supervision of the sanitation of the Territory must be provided, the cost of European supervision would be prohibitive, and it may be of interest to detail the steps which have been taken to provide sanitary supervision in Tanganyika.

African Sanitary Inspectors in the Territory are divided into two groups. Urban Sanitary Inspectors and District Sanitary Inspectors; the salaries paid are, for the former Shs. 60 when under training and Shs. 70—6—130 per mensem after obtaining the certificate; for the latter Shs. 35 and Shs. 50—5—70—6—100.

The training of English speaking natives for inspectorial duties in townships was commenced in 1921. Another course with a more advanced syllabus was given in 1924, and a course was held during 1927. This course embraces a full theoretical and practical training in the hygiene and sanitation applicable to a modern town in the tropics, and includes a knowledge of water-carriage sanitation. Courses have been held at Dar-es-Salaam and Tanga and occupy from 9 to 12 months. They consist of lectures by the Medical Officer of Health and demonstrations of practical work in all the branches of a Sanitary Inspector's duty by the European Superintendents, who are all qualified Sanitary Inspectors. When not attending classes these students are attached to the certificated Urban Inspectors, and so assist in the house-to-house inspection work from the beginning of their training.

The candidates are carefully selected, and the standard of English required is the ability to translate readily a page of an English text-book in Elementary Hygiene into Swahili. It is difficult, however, to obtain candidates with any but the most elementary knowledge of mathematics.

The text-books used are :—

- Lessons in Elementary Tropical Hygiene. Strachan.
- Royal Army Medical Corps Training, 1925 (for Anatomy and Physiology).
- West Africa Hygiene for Schools. Evans.
- Manual of Military Hygiene, 1921.

The lectures are supplemented by lantern lectures, models and museum preparations, and the issue of descriptive diagrams of sanitary and water-supply fittings, and visits are arranged to places where processes of sanitary interest are carried on.

The Syllabus is as follows :—

#### SYLLABUS.

##### I.—General.

- Definition of Hygiene and Sanitation.
- Means of carrying out—
  1. Inspections.
  2. Public services.

##### II.—Physiology. (R.A.M.C. Training, p. 169; W.A. Hygiene for Schools, pp. 69–103.) As in Ceylon Sanitary Inspectors' Syllabus.

- Rapid survey of human body. Skeleton, Muscles, Blood Vessels and Nerves and large organs in connection with Circulation, Respiration, Digestion, Excretion, Animal heat, Perspiration.

### III.—*Elementary Chemical and Physical Facts.*

Air—expansion and rise of hot air, weight of air, pressure, vacuum.  
 Gases—O, H, N, CO<sub>2</sub>, SO<sub>2</sub>.  
 Water—freezing, boiling, vapour, steam, condensation (distillation), circulation.  
 Solution.  
 Element—compounds—mixtures.  
 Combustion—  
     Carbon—uniting with Oxygen = CO<sub>2</sub>.  
     Hydrogen—uniting with Oxygen = H<sub>2</sub>O.  
 Acid, Alkali, Metal.  
 Temperature, use of thermometer, mercury.  
 (Bacteria and parasites : their relation to disease) see Strachan, pp. 7-16.

### IV.—*Climate.* (Meteorology. W.A. Hygiene, pp. 181-186.)

Physical geography—variations of climate according to situation of mountains, water, etc.—vegetation.  
 Effect of climate on health and race. Coast and inland.  
 Wind, rainfall, humidity, temperature.

### V.—*Soil.*

Strata.  
 Characters of, permeable, intermediate, impermeable.  
 Varieties of, sand, soil, clay, clayey sandstone, gravel, chalk, coral, rock, limestone.  
 Ground air and water, rise and fall and lateral movement. Pollution of, by cesspools, graveyards and refuse dumps.  
 Choice of building sites—draining of subsoil water, dampness of walls due to sucking up of ground water, evaporation.  
 Aspect—to avoid sun and obtain air.  
 Elevation.  
 Influence of surroundings, *e.g.*, swamps, vegetation.  
 Indirect influence of soil on health.

### VI.—*Personal Hygiene.* (Strachan, p. 111 ; W.A. Hygiene, pp. 193-201.)

Habits—regularity.  
 Exercise—lack of exercise, games.  
 Sleep.  
 Cleanliness—  
     Skin (clothing, boots, bowels. W.A. Hygiene, p. 187.)  
     Vermin (disinfestation).  
 School Inspection—reasons for : Teeth.  
 Alcohol, etc.—Tobacco.

### VII.—*Food.* (See W.A. Hygiene for Schools, pp. 39-68 ; R.A.M.C. Training, 1925, pp. 337-343 ; Strachan, p. 87.)

Definition. Quality and quantity.  
 Purpose.  
 Classification (Table) and effects of different foods.  
 Vitamins.  
 Excess or deficiency.  
 Sound and unsound.  
 Milk—composition—as perfect food for infants, adulteration of.  
 Meat, diseases conveyed by and systematic meat inspection.  
 Tinned foods.  
 Grains and pulses, sound and unsound.  
 Beverages, intoxicating and non-intoxicating.



VIII.—*Water and Water Supply.* (Strachan, pp. 77–86 ; W.A. Hygiene, pp. 26–39.)

IX.—*Air and Ventilation.* (Strachan, pp. 63–76 ; W.A. Hygiene, pp. 5–25.)

X.—*Refuse and Disposal of.* Waste products, including drainage. (Strachan, pp. 167–177 ; W.A. Hygiene, pp. 67–177.)

XI.—*Communicable Disease and Prevention of Epidemic.*

Bacteria. (Strachan, pp. 7–16 ; R.A.M.C. Training, 1925, p. 225 ; W.A. Hygiene, pp. 104–114.)

XII.—*Medical Zoology.* (W.A. Hygiene, p. 114, etc.)

XIII.—*Disinfection* and disposal of the dead.  
Sterilization.

XIV.—*Inspection* of premises and buildings, and keeping of records.

XV.—*Sanitary Law.* (Township rules and special Sanitary legislation.)

XVI.—*Child Welfare.*

XVII.—*Constructional Sanitation.* (Elementary Sanitary Engineering, Lighting. Strachan, pp. 100–106.)

XVIII.—*Port Health Procedure and Quarantine.*

The 1924 examination was arranged as follows, ten out of twelve candidates obtaining pass marks :—

The examination was divided into five parts, as follows :—

1. Sanitary Science	...	...	...	...	3 hours.
2. Tropical Hygiene	...	...	...	...	3 hours.
3. Mixed paper	...	...	...	...	2 hours.
4. Practical report	...	...	...	...	2 hours.
5. Viva voce	...	...	...	...	40 minutes.

All questions had to be answered in English. The questions were printed in Swahili as well as in English in order to avoid the excuse of “ not understanding the question.”

Fifty per cent. of possible marks constituted a pass, but the standard of marking was fairly liberal, and marks were neither added nor deducted for the quality of English.

The Board of Examiners consisted of the following :—

Deputy Director of Sanitary Service.

Deputy Director of Public Works.

Headmaster, Government School (for Director of Education).

Acting Director of Laboratory.

#### PART 1.—SANITARY SCIENCE. (*Five questions to be answered.*)

1. It is proposed to transfer 200 native soldiers to a camp 20 miles away from Dar-es-Salaam for a period of one year.

Accommodation is required for :—

4 Europeans.

200 native soldiers.

200 women, children and followers.

You have been placed in charge of the construction of this camp. The attached sketch (a blue print was supplied to each candidate) shows the topographical features of

the site selected for this camp ; show how you would lay out the camp and add your recommendations as to—

- The site for the camp.
- Types of houses required.
- Drinking and washing water.
- Latrines.
- General camp sanitation.

2. You have to report on the sanitary conditions of a house in which a case of illness (tuberculosis) has occurred that is attributed to defective sanitation. State generally how you would examine the house for your report.

3. What diseases do mosquitoes transmit ? Draw a rough diagram to show the main differences between—

- (a) Anopheline and
- (b) Culicine larva and adult.

What measures would you suggest to prevent mosquitoes breeding in—

- (a) Small receptacles like tins and broken bottles.
- (b) Barrels.
- (c) A shallow pool.
- (d) A swamp.
- (e) A lake.
- (f) A deep well, the water of which is used for drinking purposes.

4. Two porters have made a long safari (journey) together, and three days after arriving at your station, both become ill on the same day, one with smallpox and the other with plague. State what measures you would take to find out the source of infection in each case, and having traced this, what measures you would adopt to prevent the spread of each disease.

5. Explain in detail the differences between a shallow and a deep well. How may these become polluted ? Illustrate your answer by diagrams.

6. An outbreak of diarrhoea has occurred in an up-country native jail. You are sent to make a sanitary inspection. To what essentials would you direct your attention ?

7. What menaces to health are associated with rats, and how would you proceed to eradicate them from—

- (a) A European house.
- (b) A stone and corrugated iron house belonging to an Indian.
- (c) An isolated native hut.

#### PART 2.—TROPICAL HYGIENE. (*Only five questions to be answered.*)

1. What rules would you suggest to ensure maintaining the body in health in the tropics ?

2. Name the conditions conducive to the spread of Ankylostomiasis, and what measures you would suggest to check its spread.

3. How are foods classified ? Give instances of each. Name a perfect food and give your reasons for considering it perfect.

4. How does a human being become infected with the following diseases ? What advice would you offer to prevent persons from becoming infected with—

- (a) Typhus fever.
- (b) Bilharziasis.
- (c) Relapsing fever—African variety.
- (d) Dysentery.

5. What are the effects of solar heat in the tropics on a European and on a Native ?  
What are the functions of the skin ?

6. Draw a diagram of, and give the rules by which you would be guided in the construction of a privy pit. Where should such pit be sunk in relation to the house it is intended to serve ?

7. What is the approximate composition of the air ?

Define ventilation.

What agencies vitiate and what purify the air ? State the usual amount of fresh air allowed per person, to ensure efficient ventilation of a room.

### PART 3.—MIXED PAPER.

*(All questions to be answered.)*

1. What is—

- (a) A disinfectant.
- (b) A disinfectant.
- (c) A deodorant.

How may the former be classified ? Give an example of each.

2. What is meant by—

- (a) A water seal.
- (b) A chemical compound.
- (c) A mixture.
- (d) Humidity.
- (e) Ground air.
- (f) " Made " soil.

3. What is the purpose of a " trap " ? Name the kinds of trap you know, and the advantages or otherwise of each.

4. What are the duties of a Native Sanitary Inspector ?

5. The dimensions of a house tank are 2 feet 6 inches by 2 feet by 2 feet. How many gallons of water can it hold ?

### PART 4.

A practical report on an insanitary area or premises.

### PART 5.

A thorough viva voce examination in all branches of the work similar to that conducted by the Royal Sanitary Institute.

The instruction given to the District Inspectors is much simpler. The course lasts four to five months. Candidates must be able to read and write Ki-Swahili and the lectures are given in that language. The text-book used is " Afya " (Health), published by the Education Department. The examination is held in Swahili and consists of a written paper and viva voce. The syllabus is as follows :—

#### SYLLABUS OF COURSE OF INSTRUCTION FOR DISTRICT NATIVE SANITARY INSPECTORS.

A.—Personal Hygiene—cleanliness, clothing—protection of infants from cold, rain, etc.

B.—Minor Tropical Sanitation.

- (1) *Housing* : Ventilation, hard floors, separate provision for animals.
- (2) *Food* : Mixed diet necessary.  
Deficiency diseases, scurvy, beri-beri.  
Meat, dangers of, tape worm and anthrax.



- (3) *Water* : Wells, dangers of pollution—necessity of providing platforms instead of wading into water holes.  
Typhoid, amœbic dysentery, diarrhœa, bilharziasis.
- (4) *Excreta* : Deep pit latrines, method of construction.  
Ankylostomiasis—fly-borne diseases.
- (5) *Refuse* : Incineration—flies and rats—types of village incinerators.
- (6) *Vermin* : Prevention and destruction of vermin—necessity of emptying and sweeping huts once a week and burning dust with flea larvæ.
- (7) *Disinfection* : Sun and heat.
- (8) *Burial of dead* : Dangers of contaminating water supplies.
- (9) *Isolation* : Of infectious disease patients and contacts.

C.—*Entomology and Arthropod-borne Diseases* : Malaria—Tick fever—Typhus—Sleeping sickness—Plague—Smallpox—Bacillary dysentery—Infantile diarrhœa—Leprosy.

D.—*Venereal Diseases and Yaws* : Dangers of and methods of spread.

E.—Vaccination.

F.—Methods of submitting monthly reports.

G.—Child Welfare—Dangers of improper feeding, exposure.

Throughout the course emphasis is laid on the practical side of sanitation in so far as it can be applied to the rural African population, and the ideal aimed at is the improvement of village sanitation. Particular point is made of the construction of a pit privy for every house, improvement in the construction of dwellings, the protection of the water supply from grosser contamination, the improvement of the dietary especially of infants, and the reduction of house flies and domestic mosquitoes. No attempt is made to go into the deeper aspects of hygiene or to teach anything about Western sanitary appliances.

Courses of training for these Inspectors have been held at the Health Offices at Dar-es-Salaam, Tanga, Tabora and Lindi, during 1925 and 1926, and 185 men had passed their examination and been posted to the Districts up to the end of 1926. Lectures are given by the Medical Officers of Health at these centres, and classes and demonstrations by the European Superintendents and African Urban Inspectors, with whom the candidates obtain a practical knowledge of routine inspection and sanitary work.

Specimen questions :—

*August, 1925—*

1. Mention the kinds of refuse likely to be met with in your district. How should the refuse mentioned be disposed of ?
2. How should dirty (waste) water from a kitchen or bathroom be disposed of ? What are the dangers of not disposing of it properly ?
3. Why is the practice of defecating in the bush dangerous to the inhabitants ? How would you prevent this practice ?
4. What are the chief duties of a District Native Sanitary Inspector ? What are the chief points to which your attention must be directed in the sanitary inspection of a village, and how should you proceed about your inspection ?

*January, 1926—*

5. Why should there be a window in every room of a house ?
6. What danger is associated with insufficiently cooked meat ?
7. In what material do house flies commonly breed ? What diseases are spread by house flies ?



8. What food should be given to a child of three months old ?
9. Explain how the following diseases are spread and how they may be prevented :—  
Tapeworm.  
Ankylostomiasis.  
Tuberculosis of the lungs.
10. How does vaccination prevent the spread of smallpox ? Explain how a person should be vaccinated in order to ensure a successful result.
11. Make a drawing to show the differences between those kinds of mosquito with which you are familiar.

*December, 1926—*

12. What recommendations will you make to the headman of a village on the subject of the burial of the dead ?
13. What steps will you take in connection with a case of smallpox found in your district ?
14. Make drawings to show the differences between—  
(a) A (spirillum) tick and a louse.  
(b) A house fly and a tsetse fly.  
(c) An anopheles and a culex mosquito.
15. How will you address a village meeting in your district on the subject of sanitation ?

The Urban Inspectors in the larger towns are under the immediate control of the Medical Officers of Health and of European Sanitary Superintendents. In the smaller townships they work under the direction of the Medical Officer. They form an essential link between the trained European and the sanitary labourers, and their work, as a general rule, is most satisfactory. Owing to the difficulty in obtaining English-speaking natives with a fair general education many of the earlier candidates were natives of Nyasaland attracted to the Territory by the higher rate of pay. After a few years' service some of these employees resign and return to their homes. It is disappointing to lose a well-trained inspector on whom much time and trouble has been spent, but this difficulty will disappear as more educated natives of the Territory become available. It should then be possible to select candidates from the different districts, train them at the larger centres where Medical Officers of Health and European Superintendents are stationed, and return them for duty in towns in their own districts where they will be near their relatives and friends. The establishment of an African Civil Service will also conduce to continuity of service.

The District Inspectors, whose work is carried on amongst the village communities, are not under such efficient control. They furnish monthly reports on their work, but in the remoter districts supervision by European Sanitary Superintendents is almost negligible, and it is difficult to judge how much reliance can be placed on the reports sent in. These inspectors are purely advisory to the Native Authorities, they have no legal powers to enforce any orders, and the success of their work depends very largely on the views of the Native Authorities and village chiefs and headmen. Occasional fines imposed on individual offenders against a simple sanitary code have little effect in improving and maintaining village sanitation, the active interest of the Native Authorities is necessary before any marked improvement can result. As was anticipated, some of these inspectors have proved unsatisfactory, but the majority have been well reported on, and in the more progressive areas very considerable improvement has resulted from their work. Several Medical Officers have commented in their annual reports on the fact that information of outbreaks of infectious disease has been sent in immediately by the District Inspectors. The prompt notification of a case of smallpox or plague in a village might well make the difference between a widespread epidemic and a few cases confined to a small area. All District Inspectors are trained as vaccinators, and this has resulted in a

considerable increase in the number of vaccinations performed. A small table, showing the vaccinations for the years 1923–1927 in a few districts, follows :—

Area.	Numbers of African District Sanitary Inspectors.	1923.	1924.	1925.	1926.	1927.
Bukoba .. .. .	10	723	924	879	2,399	49,238*
Moshi .. .. .	8	2,869	13,906	58,800*†	38,200	23,279
Tabora .. .. .	26	14,375	14,568	33,082*	55,061	39,430
Dodoma .. .. .	10	9,466	8,765	14,554*	25,648	48,179
Morogoro .. .. .	6	3,230	1,467	5,214*	7,021	8,993
Rungwe .. .. .	7	620	3,418	5,015	6,439*	32,373
Kilwa .. .. .	4	7,162	4,335	3,915	7,627*	11,504

\* Date of establishment of African District Sanitary Inspectors in above areas.

† The 58,800 vaccinations were undertaken to combat an epidemic of Smallpox introduced from Taveta (Kenya Colony).

No claim is made by the Medical Department of Tanganyika that the organisation of the Native Sanitary Inspectorate is adequate. Improvements are necessary in the personnel, in the training, and particularly in the supervision on the work of the District Inspectors. The fact remains that a considerable proportion of the native population receive advice and instruction in elementary hygiene and sanitation. Whether they will voluntarily use the information to improve the conditions in their homes and villages remains to be seen ; any improvement will certainly be slow, but reports from the more progressive areas are encouraging, and there is no doubt that the experiment of providing District Sanitary Inspectors has, on the whole, been a success.

#### (d) Recommendations for Future Work.

My recommendations have been included in the Director of Medical and Sanitary Services' Report.

#### REPORT OF THE MEDICAL OFFICER OF HEALTH FOR DAR-ES-SALAAM.

BY DR. R. R. SCOTT, M.C., M.B., B.S., M.R.C.S., L.R.C.P., D.P.H.

The writer relieved Dr. A. McKenzie, who had acted as Medical Officer of Health for the previous eighteen months, on the 3rd December, and the Report will therefore consist of a statement of facts and figures, rather than a comprehensive survey of the health of the town.

Dr. W. J. Aitken, Assistant Medical Officer of Health, was transferred to Tabora on 10th October, and was relieved by Dr. J. Harkness, who in turn was relieved on 16th January, 1928, on transfer, by Dr. C. Wilcocks, who had arrived on 27th December.

Dr. Madelaine Harvey Clarke was appointed on 16th November, her duties being primarily in connection with Maternity and Child Welfare.

The European Staff of the Health Office therefore consisted, at the end of the year, of the following Officers :—

Medical Officer of Health.

Assistant Medical Officers of Health	...	...	...	...	...	2
Health Visitor	...	...	...	...	...	1
Sanitary Superintendents (one departed on leave on 18th December)	...	...	...	...	...	3
Clerk-Storekeeper	...	...	...	...	...	1



The European Staff employed on behalf of the Township Authority consists of a Building Inspector and a Clerk (the latter paid from Administrative funds), both of whom are accommodated at the Health Office.

One of the Sanitary Superintendents is employed solely on the inspection of food and licensed trades, and is therefore closely associated with the work of the Township Authority.

The fact that the Sanitary Engineer who was appointed to the Public Works Department in 1926 proved unsuitable, and that the vacancy caused by his departure has not yet been made good, has further delayed the preparation of the sewerage scheme, which has now become a matter of most serious import to the town.

This matter has been dealt with at greater length in previous reports, and is briefly referred to later in this report under the heading of Sewage Disposal; but the brief reference herein must not be allowed to minimize the importance of the problem to be faced in this respect. The precarious existence which we lead at present, with our cesspits re-filling with surface water which leaks into them when the ground water level is sufficiently high, as fast as we endeavour to empty them by pumping, has been the cause of serious nuisance and much acute discomfort. Certain low-lying parts of the residential area have been particularly seriously affected in the early months of 1928, following an abnormal saturation of the ground with rain water, for the removal of which inadequate provision exists even in years of normal rainfall.

The Deputy Director of Sanitary Service's recommendation, on page 36 of the Annual Report for 1926, for the appointment of a Consulting Sanitary Engineer, whose advice would be acceptable to the Colonial Office, should be acted upon without further delay.

A small outbreak of influenza, mainly of a mild type, occurred during November and December; no other unusual outbreaks of infectious diseases occurred. Improvements are being effected at the Infectious Diseases Hospital which will render its working much more satisfactory.

Dr. Wilcocks has made most valuable analysis of the Tuberculosis records, which is inserted as a separate section.

The Village Sanitation in the District has been watched by the African District Sanitary Inspectors, and some progress made. The training of the class of probationary African Urban Inspectors has continued. Much useful anti-malarial work, especially in the laying of agricultural tile drains, has been carried out by Dr. McKenzie and Mr. Rance, Sanitary Superintendent, the latter having been employed throughout the year on anti-mosquito work.

A separate report on the Maternity and Child Welfare Branch, which includes the School medical work, has been prepared by Dr. Clarke.

The Statistical Section is as complete as the available material allows, but in the absence of exact information as to the population and its rates of increase, the figures are of relative value only, and cannot be regarded as exact. I am convinced that a census of the whole population of the town should be taken annually for the next ten years, firstly, to obtain exact figures and to establish rates of increase on which the Registrar could work thereafter, and secondly, to accustom the population to census-taking. It is not a difficult procedure in a town like this, and if the procedure was recognized as usual among a large urban population like this, it is probable that it would come to be regarded with less suspicion in other places.

The crude death rate for the whole population was 12·5, which is satisfactory. The infantile mortality rate, which is such a valuable index of the hygienic condition of a town, cannot be calculated, owing to the present unsatisfactory notification of births. A marked fall has occurred in the Hookworm deaths, while those from Tuberculosis remain about

the same as in 1926. The Tuberculosis death rate in Africans is 2·57 per 1,000. Pneumonia caused the largest number of deaths from any one cause.

The rainfall, 50·9 inches, was the highest during the past nine years, and exceeded the next highest by 8 inches. An exceptionally large amount, 21 inches, fell during the last quarter of the year, and these two factors account for the high level of the subsoil water and the appearance of new dangerous mosquito-breeding places in the seepage which is occurring in hitherto unsuspected places.

At the time of writing I wish to record the very sad loss the Department has sustained by the death of Mr. de Souza, Asiatic Sanitary Inspector in charge of anti-mosquito drainage measures, which occurred on 2nd February, 1928. This officer's invaluable knowledge of the town and of its inhabitants, his unwavering loyalty and honesty, and his popularity with, and ability to control, native labour, combined to cause a gap in the staff which will be most difficult to fill.

The need for some form of social work among the native population is very great. There are no organized games for them, and my experience has shown that the mixed African population here is incapable of running for a prolonged period, anything in the nature of a club where the question of paying and collecting subscriptions arises.

There are no decent amusements available for the natives, such as a social club with indoor games, or library or reading room; no level public playgrounds; no swimming pool; no native bookshops; no theatre; the films which are shown at the single cinema which exists, and which is poorly equipped though expensive to attend, are mostly of the Indian legendary type, and unsuitable for African audiences.

The available regular relaxations are religious worship, the reading of the native monthly magazine, "Mambo Leo," an occasional football match, and the native dances on Saturdays and Sundays; the beer hall, and the pursuit of women, with its resultant venereal disease. Sociological workers in other parts of the world have shown that to combat the excessive enjoyment of the two last named, alternative relaxation must be provided, and, for the young healthy human being, physical exercise is undoubtedly the best alternative to provide. Zanzibar can teach us a lesson in this respect, since a large and prosperous native football league has been organized there under European supervision.

For the older and literate members of the community, an airy hall, adequately lighted, from 6 to 9 p.m., similar to a market building, but not open to the public gaze, where indoor games could be played, books and papers read, and a regular cinema film of the better type, or other entertainment, could be shown, would be an inestimable boon to the town as a whole.

The visit to South Africa paid by the writer during his local leave in February, and the return visit of Dr. A. J. Orenstein, C.M.G., Chief of the Rand Mines Medical Department in Johannesburg, were pleasurable experiences not without profit to the town.

The utmost kindness was extended to me during my visit, and every opportunity was afforded of seeing the medical and sanitary arrangements made for mine employees. It has been shown on the Rand that no expenditure is too heavy which will produce such an improvement in the conditions of the workers as will be likely to result in increased efficiency.

Visits were also paid, through the kindness of Dr. Milne, the Medical Officer of Health of the city, to many of the important municipal health undertakings, particularly in connection with the housing of the African population, while a valuable supply of literature and drawings relating to practical sanitation among a large mixed population was given to me.

Durban, again, provided a valuable experience in connection with the social improvements for the native population which have been effected by the expenditure thereon of the profits on municipally controlled native beer.



The whole trip was an eye-opener to one who had been rather under the impression that the South African native was down-trodden and ill-cared for, while it may surprise some to learn that all this improvement of hygienic conditions for the natives is carried out, not for philanthropic reasons, but because it is found to give a cash return for more efficient work resulting from improved health and well-being.

Dr. Orenstein's visit in June afforded an opportunity of discussing many of our problems with a practical sanitarian of international reputation ; for, in addition to having assisted the late General Gorgas to organize the medical and sanitary work on the Panama Canal, he had made a report on the sanitation of Dar-es-Salaam for the late administration during 1913-14, and was already familiar with most of our difficulties. The words he wrote fourteen years ago are worth quoting again : "I want to express my absolute conviction that Dar-es-Salaam can be made healthy. Malaria can be eradicated more easily than in Panama."

#### STATISTICS FOR THE YEAR 1927.

—	Europeans.	Africans.	Asiatics, including Syrians.	Total.
1927.				
Population, estimated by the District Officer for the information of Legislative Council, as at December 31st—				
Civilian population .. .. .	774	28,464	5,900	35,138
K.A.R. and Police .. .. .	—	1,536	—	1,536
Total .. .. .	774	30,000	5,900	36,674
1926.				
Population, estimated by District Officer—				
Civilian population .. .. .	900	30,000	6,000	36,900
K.A.R. and Police .. .. .	—	1,235	—	1,235
Total .. .. .	900	31,235	6,000	38,135
1925.				
Population on December 31st, 1925, based on figures obtained by the Administration on May 30th, 1925, which were calculated from inhabited house and other figures ..	668	22,984	4,594	28,076
Births notified at Health Office—				
1927 .. .. .	22	53	37	112
1926 .. .. .	16	44	26	86
1925 .. .. .	20	—	8	28
Deaths for which Burial Permits were issued—				
1927 .. .. .	13	324	122	459
1926 .. .. .	7	375	136	518
1925 .. .. .	4	304	124	433
Crude Death Rate—				
1927 .. .. .	16·79	10·8	20·67	12·5
1926 .. .. .	7·7	12·0	22·66	13·6
1925 .. .. .	6·0	13·2	26·9	15·4
Infant Mortality Rate, 1927 .. .. .	45·5	(674)	(560)	(504)

The African and Asiatic figures obtained are of insufficient value for record since notification of births is not yet enforced.

It is hoped to remedy the above unsatisfactory statistical figures, which are usual in tropical towns having a large floating and illiterate population, by the taking of an actual census of the native population during April, 1928. Further endeavours are being made to obtain better notification of African births.

#### SUMMARY OF DEATHS.

(Classified as Certified when seen by a medical practitioner before death, or certified by post-mortem.—Classified as Notified when probable cause of death ascertained by inquiry after death.)

	Certified.		Notified.		Total.	
	1926.	1927.	1926.	1927.	1926.	1927.
Europeans .. ..	6	13	1	—	7	12
Asiatics .. ..	87	95	49	27	136	123
Africans .. ..	130	115	245	209	375	324
TOTAL.. ..	223	223	295	236	518	459

It will be seen that the greatest reduction has taken place among the African “notified” deaths, which may be ascribed to the large number (11) of non-Government registered medical practitioners now practising in the town, and indicates that a larger proportion of persons were medically treated before death than in 1926.

The large number of European deaths (13) when examined in the light of the table on page 50 is seen to contain at least five deaths of persons brought into Dar-es-Salaam during their last illness. This is bound to occur so long as the town contains the main base hospital for the Territory, and shows one of the fallacies of the crude death rate.

#### COMPARATIVE TABLE OF DEATHS BY COMMUNITIES, 1921-27.

	Rainfall in inches.	European.		Asiatic.		African.		Total.	
		Deaths.	Crude death rate.	Deaths.	Crude death rate.	Deaths.	Crude death rate.	Deaths.	Crude death rate.
1921 .. ..	33.9	7	—	52	—	170	—	229	—
1922 .. ..	34.0	11	—	44	—	184	—	239	—
1923 .. ..	25.6	8	—	79	—	237	—	325	—
1924 .. ..	28.9	8	—	79	—	259	—	346	—
1925 .. ..	42.0	4	6.0	124	26.9	304	13.2	432	15.4
1926 .. ..	36.2	7	7.7	136	22.6	375	12.0	518	13.6
1927 .. ..	50.9	13	16.79	123	20.67	324	10.8	459	12.5

This table shows no relation between a high annual rainfall and high mortality.

TABLE SHOWING MONTHLY INCIDENCE OF DEATHS: 1926 AND 1927 COMPARED.

1926.			1927.						
Month.	1926.		Total deaths.	Certified deaths.			Notified deaths.		
	Rainfall in inches.	Total deaths.		European.	Asiatic.	African.	European.	Asiatic.	African.
January ..	0.074	40	26	4	5	5	—	2	10
February ..	2.202	26	28	1	3	9	—	2	13
March ..	3.526	46	42	1	7	11	—	3	20
April ..	13.242	44	31	1	2	8	—	3	17
May ..	7.329	38	64	1	21	18	—	—	24
June ..	0.040	59	33	—	8	7	—	4	14
July ..	—	41	26	1	5	4	—	2	14
August ..	0.200	38	39	1	5	14	—	4	15
September ..	2.126	48	36	—	4	10	—	—	22
October ..	1.592	41	41	—	12	9	—	1	19
November ..	5.550	44	42	2	11	9	—	3	17
December ..	0.400	53	51	1	12	11	—	3	24
TOTAL ..	36.281	518	459	13	95	115	—	27	209
Monthly rate ..	—	43.1	38.2	1.08	7.9	9.5	—	2.2	17.4



It is interesting to compare the deaths occurring during the months March to June for the two years with the rainfall:—

				1926.		1927.	
				Rainfall.	Deaths (monthly mean, 43·1).	Rainfall.	Deaths (monthly mean, 38·25).
March	..	..	..	3·5	46	10·4	42
April	..	..	..	13·2	44	6·3	31
May	..	..	..	7·3	38	4·4	64
June	..	..	..	0·04	59	—	33

In each case it is seen that the greatest number of deaths occurred two months after the month of heaviest rainfall.

#### SUMMARY OF MORE FREQUENT CAUSES OF DEATH.

				1926.			1927.		
				Certified.	Notified.	Total.	Certified.	Notified.	Total.
Pneumonia (all varieties)	..	..	..	31	34	65	35	4	39
Ankylostomiasis	..	..	..	32	19	51	11	21	32
Malaria (not including blackwater fever)	..	..	..	15	5	20	17	—	17
Pyrexia of uncertain origin	..	..	..	6	54	60	—	102	102
Senility and natural causes	..	..	..	2	104	106	8	52	60
Tuberculosis of lungs	..	..	..	24	3	27	26	4	30
Bronchitis and undifferentiated chest complaints	..	..	..	9	18	27	—	39	39
Accidents and injuries	..	..	..	—	—	—	21	—	21
TOTAL	..	..	..	119	237	356	118	222	340

#### CAUSES OF DEATH IN EUROPEANS.

1. Tuberculous meningitis	..	English child.
2. Enteric fever	..	Patient removed from French mail steamer; presumed to have been infected during journey or at Marseilles.
3. Enteric fever	..	Brought in from a Mission Station outside Dar-es-Salaam.
4. Malaria, cerebral	..	Brought from Kidugalo and died in the train before arrival at Dar-es-Salaam.
5. Malaria, cerebral	..	Resident; old infection.
6. Chronic malaria and pneumonia	..	Chronic infection of many years' duration.
7. Pneumonia	..	Brought into Dar-es-Salaam from up-country.
8. Cirrhosis of liver	..	Resident outside Dar-es-Salaam.
9. Phthisis	..	—
10. Acute infantile gastro-enteritis	..	Dutch child.
11. Icterus neonatorum	..	Greek child.
12. Suicide by drowning	..	—
13. Suicide by gunshot wound	..	—

## BIRTHS AND INFANT DEATHS NOTIFIED.

—	Live- births notified.	Still- births notified.	Total. births notified.	Infant deaths.		
				Certified.	Notified.	Total.
European .. .. .	22	1	23	2	—	2
Asiatic .. .. .	37	5	39	26	2	28
African .. .. .	53	6	62	8	12	20
TOTAL .. .. .	112	12	124	36	14	50

The above records as they apply to Asiatics and Africans are incomplete, since notification of their births is not effective, and some infant deaths or stillbirths appear to have been notified in order to obtain a burial permit although the birth has not been notified. It is regretted that these were not followed up at the time.

## CAUSES OF INFANT DEATHS, 1927.

—	European.		Asiatic.		African.		Total.
	Certified.	Notified.	Certified.	Notified.	Certified.	Notified.	
Pneumonia (all varieties) .. .. .	—	—	8	1	—	1	10
Malaria .. .. .	—	—	2	—	1	—	3
Pyrexia of uncertain origin .. .. .	—	—	1	1	—	3	5
Chest conditions undifferentiated .. .. .	—	—	—	—	—	4	4
Prematurity .. .. .	—	—	1	1	—	2	4
Malnutrition .. .. .	—	—	3	1	—	1	5
Acute infective enteritis .. .. .	1	—	3	—	3	—	7
Tetanus neonatorum .. .. .	—	—	—	—	3	—	3
Convulsions .. .. .	—	—	1	—	—	—	1
Meningitis .. .. .	—	—	—	—	1	—	1
Congenital syphilis .. .. .	—	—	1	—	—	—	1
Malignant icterus neonatorum .. .. .	1	—	2	—	—	—	3
Rickets .. .. .	—	—	1	—	—	—	1
Spina bifida .. .. .	—	—	—	—	1	—	1
Cardiac failure .. .. .	—	—	1	—	—	—	1
TOTAL .. .. .	2	—	24	4	9	11	50

## INFECTIVE DISEASES : PREVENTIVE MEASURES.

*Mosquito-borne Diseases.*

—	1925.	1926.	1927.
Collections of mosquito larvæ found—			
Anopheles .. .. .	824	359	44
Culex .. .. .	1,431	716	326
Stegomyia .. .. .	1,674	1,266	893
TOTAL .. .. .	3,929	2,341	1,263

ANALYSIS OF COLLECTIONS OF LARVÆ FOUND, BY MONTHS, 1927.

—						Rainfall (in inches).	Anopheles.	Culex.	Stegomyia.
January	..	..	..	..	..	1·538	—	7	59
February	..	..	..	..	..	2·680	—	12	44
March	..	..	..	..	..	10·489	12	62	124
April	..	..	..	..	..	6·331	5	32	148
May	..	..	..	..	..	4·409	—	26	122
June	..	..	..	..	..	0·007	2	18	38
July	..	..	..	..	..	1·106	—	16	31
August	..	..	..	..	..	1·200	—	12	30
September	..	..	..	..	..	1·626	—	15	42
October	..	..	..	..	..	6·435	5	14	37
November	..	..	..	..	..	8·460	3	16	36
December	..	..	..	..	..	6·620	17	96	182
TOTAL						50·901	44	326	893

ARTIFICIAL BREEDING PLACES OF MOSQUITOES.

—					1926.			1927.		
					Anopheles.	Culex.	Stegomyia.	Anopheles.	Culex.	Stegomyia.
Tins	..	..	..	..	—	13	72	—	29	149
Jar	..	..	..	..	—	14	221	—	11	128
Flower-pots	..	..	..	..	—	—	—	—	2	15
Drums, barrels	..	..	..	..	—	50	564	—	27	352
Roof-tanks and gutters	..	..	..	..	—	1	7	—	2	1
Unclassified iron containers	..	..	..	..	—	22	150	—	9	69
Defective structure, etc.	..	..	..	..	—	—	—	1	13	—
Excavations, borrow pits	..	..	..	..	—	2	5	3	3	—
Tanks	..	..	..	..	—	31	178	1	20	—
Drains	..	..	..	..	—	13	6	2	20	150
Pools	..	..	..	..	—	70	6	17	30	2
Soakage and cesspits	..	..	..	..	3*	121	2	—	82	3
Wells	..	..	..	..	1	2	1	—	4	3
Rubbish	..	..	..	..	—	5	50	—	—	2
Gully traps	..	..	..	..	—	63	—	—	50	9

\* Pits under construction generally filled with rain or seepage water.

The largest number of larvæ found (295) was in December ; the smallest number (42) in August.  
The largest number of Anopheles larvæ (17) was found in pools.  
The largest number of Culex larvæ (82) was found in soakage or cesspits.  
The largest number of Stegomyia larvæ (352) was found in drums or barrels.

Adult Anopheles Mosquitoes were caught in the following areas :—

- Upanga Road houses on three occasions.
- Kichwele Street houses on one occasion.
- Gerezani Road houses on two occasions.



## NOTIFICATION OF MALARIA.

—				Cases confirmed by blood examination.	Cases not confirmed by blood examination.	Total.	Percentage of total notifications confirmed by blood examination.
1924	..	..	..	520	180	700	74
1925	..	..	..	742	390	1,132	65
1926	..	..	..	359	320	679	52
1927	..	..	..	961	3,310	4,271	22

The notable increase in the number of cases notified during 1927 is largely due to the increased number of private medical practitioners in the town, and the consequent larger number of cases of " fever " coming under qualified treatment than was the case in previous years.

The distribution of the 1927 notifications is as follows :—

Notified by				Cases confirmed by blood examination.	Cases not confirmed by blood examination.	Total.	(Including cases of blackwater fever.)	Percentage of total notifications confirmed by blood examination.
Private practitioners	..	..	..	21	477	498	(1)	42
European hospital	..	..	..	196	111	307	(1)	64
Sewa Hadji (Native hospital)	..	..	..	744	2,722	3,466	(6)	21
TOTAL .. .. .				961	3,310	4,271	(8)	22

## OTHER ARTHROPOD-BORNE DISEASES.

*Plague.*

No case occurred.

—							Rats caught.	Rats examined at laboratory.	No. of catchers employed.
1925	..	..	..	..	..	..	23,154	—	4*
1926	..	..	..	..	..	..	19,671	3,915	?
1927	..	..	..	..	..	..	19,217	3,650	5*

\* Includes one man employed by the King's African Rifles to catch rats in the barracks.

*Relapsing Fever.*

Twenty-four cases were notified as follows :—

By Medical Officer, European Hospital .. .. .	2	2 cases contracted outside Dar-es-Salaam.
By Medical Officer, Sewa Hadji Hospital .. .. .	13	7 cases contracted outside Dar-es-Salaam.
By Medical Officer of Health .. .. .	7	1 case contracted outside Dar-es-Salaam.
By private practitioners .. .. .	2	2 cases contracted outside Dar-es-Salaam.
TOTAL .. .. .	24	12 cases contracted in Dar-es-Salaam.

Infected *Ornithodoros* have not yet been recovered from houses, but specimens not proved to be infected have been found in many houses, principally those in which travellers from Nyasaland who come via the Iringa route are in the habit of staying. The tick does not appear to be able to establish itself in Dar-es-Salaam town—witness their disappearance after the war, during which time large numbers could be found at the Carrier Hospital (now Msimbazi Street–Kichwele Street junction); while specimens could not be produced from the township between the years 1919–25.

All houses from which cases are notified are carefully searched for ticks.

OTHER INFECTIVE DISEASES NOTIFIED.

Yaws is dealt with by the Medical Officer of the Sewa Hadji Hospital.

Tuberculosis is dealt with in a separate section of this Report (see page 63).

Leprosy is dealt with in a separate section of this Report (see page 55).

Notified by						Chicken-pox.	Mumps.	Measles.	Enteric fever.
Medical Officer of European Hospital	..	..	..	..	..	—	—	2	2
Sewa Hadji Hospital	..	..	..	..	..	5	—	26	—
Medical Officer of Health	..	..	..	..	..	5	—	21	—
Private practitioners	..	..	..	..	..	—	1	3	2*
TOTAL	..	..	..	..	..	10	1	52	4

\* Includes one case of Paratyphoid Fever.

A number of cases of Influenza of a mild type occurred at the end of the year, but notification was not insisted upon.

VACCINATIONS.

—						1926.	1927.
Number vaccinated	..	..	..	..	..	1,021	415
„ re-inspected	..	..	..	..	..	96	4
„ successful	..	..	..	..	..	55	3
„ unsuccessful	..	..	..	..	..	41	1
„ not re-inspected	..	..	..	..	..	925	411

INFECTIOUS DISEASES HOSPITAL.

The new wards for phthisis cases were under erection at the end of the year, and consist of a long ward for 11 beds for Africans, and a small ward for two beds for Asiatics. Provision has been inserted in the draft estimates for a fence to surround the hospital during 1928–29. This will make a very great difference to the efficiency of the premises as an isolation hospital.

The erection of the Washington–Lyon disinfector was nearly completed at the end of the year.

The huts for leprosy patients are shortly to be pulled down and new ones erected providing more adequate accommodation.

## SUMMARY OF HOSPITAL FIGURES FOR THE YEAR 1927.

—				In- patients remaining 1.1.27.	Ad- missions, 1927.	Discharges, 1927.	Deaths, 1927.	Absconded 1927.	Remaining 31.12.27.
Leprosy .. ..	..	..	..	38	52	46	4	9	31
Tuberculosis .. ..	..	..	..	2	32	5	18	6*	5
Measles .. ..	..	..	..	9	59	68	—	—	—
Chickenpox .. ..	..	..	..	—	10	10	—	—	—
Relapsing fever.. ..	..	..	..	—	1	1	—	—	—
Influenza .. ..	..	..	..	—	1	1	—	—	—
TOTAL .. ..	..	..	..	49	155	131	22	15	36

\* Does not include one man who absconded and was recaptured. Re-admissions are not shown as admissions.

## LEPROSY.

Active cases of leprosy are treated at the Infectious Diseases Hospital by weekly subcutaneous injections of Hydnocreol in 5 c.c. doses. This drug is undergoing trial with a view to its adoption, instead of a more expensive preparation of Chaulmoogra.

Good results continue to be shown in early cases, and it is to the credit of the treatment that those natives who are discharged as non-infective frequently voluntarily come for further injections, while new cases constantly present themselves for treatment. Nodules which have been individually injected show a tendency to disappear quite rapidly, and the neuritic pains are relieved.

The results in anæsthetic cases are less marked. In several nodular cases Protein Shock is being used, and in one anæsthetic case Insulin is injected twice daily, together with the weekly dose of Hydnocreol. This case was showing slight improvement after two months of this treatment.

Cases are admitted on clinical diagnosis, diagnosed definitely on bacteriological confirmation later, and are only discharged after three consecutive skin or nasal smears are found to be negative. Of the patients discharged during 1927, four are known to be fit and at work, one is under observation and receives weekly injections, and five have relapsed.

Old nerve cases and fibroid nodular cases are admitted to the Nunge Settlement when considered unlikely to benefit by treatment.

The buildings at Nunge are to be reconstructed during 1928, and an improved type of building will be provided. The settlement is not enclosed in any way, and inmates can escape at any time they wish to. It is noteworthy that only seven did so during the year.

The water supply is obtained from three wells close to the creek, and at a distance of about half a mile from the settlement. This means that there is some difficulty in transporting the water, since many of the patients are incapable of carrying anything. A gift of Shs. 50 was received for the provision of extras in the way of comforts and clothing, and is gratefully acknowledged.

The English Church Council has offered gifts also, and arrangements are being made to provide articles of clothing acceptable to the patients.



## RETURN OF PATIENTS AT THE NUNGE LEPROSY SETTLEMENT.

Remaining 1.1.27 .. .. .	88†
Admitted during 1927 .. .. .	5*
Discharged during 1927 .. .. .	9*
Died during 1927 .. .. .	13
Absconded during 1927 .. .. .	7
Remaining 31.12.27 .. .. .	64†

\* One discharged and re-admitted and not included in these figures.

† One child born in the Settlement is non-leprous.

## TYPE OF CASES (MUIR'S CLASSIFICATION).

A 1.	A 2.	B 1.	B 2.	B 3.
41	42	7	2	—

## GENERAL MEASURES OF SANITATION.

*Public Conveniences.*—A new water-flushed public convenience has been erected at the Old Market, accommodating African males and females and Asiatic males. This abolished the old incinerator latrine, which had been the cause of much nuisance. It is working very satisfactorily.

*Sewage Disposal.*—New pumping apparatus and tanks and the replacement of the worn-out Daimler lorry, which has done ten years' duty on this work, have been provided for during 1928.

The following loads of cess have been removed during the year :—

	Number.	Gallons.
Loads removed by hand pumps at 250 gallons per load .. .. .	4,859	1,214,750
Loads removed by Lacre vacuum tank at 400 gallons per load .. .. .	2,217	886,800

The very large number of new buildings which are being constructed is throwing a serious strain on the pumping plant, which, together with the present high level of the subsoil water owing to the heavy rainfall for the year, with the consequent reduction of percolation from the pit, renders the undertaking of the first step towards the construction of a sewerage system a matter of urgent necessity.

This is the outstanding requirement for the town, and the construction of a main outfall, say from the Railway Station to Government House, would make an appreciable difference to the health and comfort of the householders living on that line, while branch connections could be added to it year by year. But it is essential that a start should be made along permanent lines.

Our present method of discharging large quantities of sewage into the inner harbour is likely to lead to nuisance in the future when the amount becomes greater than the tidal rise and fall can deal with, and then expensive works might have to be carried out all at once, instead of preparations being made gradually and carefully, adding to a permanent system annually as funds permit.

*Refuse Collection and Disposal.*—A new destructor modelled on a design kindly supplied by Dr. Orenstein is to be erected at the top of Bagamoyo Street. This will reduce to a minimum the danger caused by the fly-breeding which occurs in the neighbourhood of the

present open incinerators during wet weather. The product will be used for filling the old borrow pit adjoining the site, and when that is completed can be tipped over the cliff into the Msimbazi Valley.

The filling with incinerator ash of the swampy depression at the junction of Amani Street and Livingstone Street has proceeded most satisfactorily, and only a small area, formerly known as the Mbuyuni Swamp, remains to be filled.

The number of lorries now working on the collection of house refuse is two, and another is supplied by the Transport Department almost continuously for the collection of garden refuse and grass cuttings only. The oxen are not being replaced as they become unfit for further service, and it is hoped gradually to replace them by motor vehicles. Two additional Albion two-ton lorries are to be obtained during 1928 for this service. An average of 86 ox-cart loads of house refuse were burned daily.

When the new destructor has been erected it is hoped to obtain a weighbridge, in order that a more accurate system of costing this branch of the service may be introduced than is possible at present.

*Water Supply* (figures kindly supplied by the Executive Engineer, Public Works Department).—The consumption from the mains was 38,128,560 gallons, an increase of nearly 5,000,000 gallons over that for 1926.

								Shs.
Revenue	...	...	...	...	...	...	...	83,343
Expenditure	...	...	...	...	...	...	...	49,788

Number of buildings supplied from mains :—

1924	...	...	...	...	...	...	...	145
1925	...	...	...	...	...	...	...	168
1926	...	...	...	...	...	...	...	211
1927	...	...	...	...	...	...	...	385

Cost of water to consumers :—

On flat rate	...	...	...	...	Shs. 15 per month.
By meter	...	...	...	...	Shs. 5 per 1,000 gallons.
At standpipes	...	...	...	...	•02 cent per 4-gallon tin.

New mains have been laid along Smuts Street and part of Selous Street, as far as Ring Street.

Several trial boreholes have been sunk in Gerezani Creek below the main pumping station, and water has been tapped whose static head rises above ground level, one particular bore yielding 1,800 gallons per hour.

The pumping stations now supplying the mains are those at Gerezani, Kurasini and Carrier Corps (New Market).

The number of additional buildings now supplied from the main reflects credit on the Public Works Department, in view of the limited funds available for extension, but the supply and storage are still insufficient to meet all demands. The town is expanding rapidly, and a very large number of modern buildings, demanding increased supplies, is springing up in the commercial and residential areas, while the standpipe service in the native quarters has not been increased.

The early expansion of the supply on a large scale is a duty which Government should face at once. There is no question of the sufficiency of the underground water to meet all demands for many years to come, but the existing distribution system, in spite of extension each year, is still inadequate.

The reconstruction of the public laundry in Gerezani, from which Government derives a not inconsiderable revenue, and the provision of public bathing facilities, are both matters which demand the common attention of the Public Works Department and ourselves.

## FOOD INSPECTION.

The following quantities of foodstuffs were surrendered voluntarily to the Food Inspector :—

Article.	No. of lots.	Weight or quantity.	Reason.
Meat (beef and goat flesh) .. .. .	153	1,873 lbs.	Mostly decomposing.
Fish .. .. .	5	283 lbs.	Decomposing.
Vegetables and fruit .. .. .	11	14,941 lbs.	„
Grain, flour and pulses .. .. .	11	2,599 lbs.	Weevils, dirt and mould.
Macaroni .. .. .	1	40 lbs.	Mouldy.
Ham and bacon .. .. .	2	253 lbs.	„
Cheese .. .. .	2	94 lbs.	„
Tinned goods .. .. .	39	2,144 tins.	Blown or rusty.
Confectionery .. .. .	4	55 lbs.	Mouldy.
Condiments, etc., in bottles .. .. .	5	103 bottles	Unsound.
Cyder .. .. .	1	30 bottles	Sour.

Samples sent for analysis were as follows :—

	Samples.
Milk ... .. .	160
Aerated water ... .. .	30
Filtered water ... .. .	2
Meat ... .. .	1

No sample of milk contained less than the legal minimum of 3 per cent. of fat, but two samples were found to contain 15·3 per cent. and 19·5 per cent. added water respectively. Convictions and fines of Shs. 50 and 100 were secured in these cases.

The average figures obtained from the analysis of 100 samples of milk have been calculated by the Food Inspector and are as follows :—

S.G.	Total solids.	Fatty solids.	Non-fatty solids.
1,034	Per cent. 13·5	Per cent. 4·5	9·00

The reports on the other articles examined do not call for comment.

Improvements have been effected in the method of transporting meat from the slaughter house to the markets, all butchers having provided themselves with covered carts constructed according to the recommendations of the Food Inspector.

An extension of the dried Shark Market is under construction. This will double the capacity of the stores and provide an extensive concrete yard on which the fish can be sorted and examined.

A communal milking shed for the use of a number of cowkeepers who have no suitable premises for milking their cows is to be provided during 1928-29.

## LICENSED AND OFFENSIVE TRADES.

The Licensed and Offensive Trades were kept under observation by the Food Inspector and their numbers are summarised below :—

Eating houses ... .. .	28
Aerated-water manufactories ... .. .	5
Ice-cream manufactories ... .. .	5
Cold-drink shops ... .. .	21
Milk shops and sellers ... .. .	40
Cowsheds ... .. .	32



Bakers	...	...	...	...	...	...	7
Soap boilers	...	...	...	...	...	...	4
Hide factors...	...	...	...	...	...	...	7
Oil mills (camel driven)	...	...	...	...	...	...	6

## STORES.

The sanitary equipment stores for the Territory continued to be issued from the Health Office. These stores occupy a large amount of space and take a good deal of time for checking and issuing. It is hoped that they will be amalgamated before long with the main Medical Department stores, and so release the accommodation which is required for other purposes.

The following was the approximate cost of stores used for the Health Office and its associated activities during the year :—

Oil for anti-mosquito work—	£
Kerosene (538 gallons)	25
Crude oil (3½ tons)	22
Uniforms	87
Sanitary equipment and disinfectant	486

Revenue received for the emptying of non-Government cesspits amounted to £276.

## SUMMARY OF ROUTINE SANITARY MEASURES CARRIED OUT.

Nuisances other than mosquito larvae found and dealt with	...	452
Prosecutions	...	24
Convictions	...	24
Drains cleaned	...	1,018
New drains cut	...	1·5 miles.
Drains piped with agricultural tiles...	...	4·3 miles.
Reclamation of depressions	...	39,684 c. yds.
Collections of fly maggots found	...	120
Notices served	...	715

## SANITATION IN DAR-ES-SALAAM DISTRICT.

African District Sanitary Inspectors are posted at nine stations in the District, and are doing good work.

A tour of inspection was made early in the year to the coastal and inland stations, with the exception of Ruvu, by Mr. Rowe, Sanitary Superintendent, and difficulties between the Inspectors and the local authorities of the villages were in many cases smoothed down, and a better understanding effected. It is unfortunate that more time cannot be spent by the Medical Officer or Sanitary Superintendent on this work, for very great improvements can be effected in securing the construction of privies and the disposal of village refuse if the African Inspector's admonitions are backed up by European persuasion and compulsion where necessary.

At many of the coastal villages it was found difficult to construct privies owing to the loose nature of the sandy soil, and in some cases empty cement barrels were sent down by dhow to assist in the construction of the privies as is done with wells.

Representations were made to the District Office in regard to certain villages where the water supply was inadequate and funds have been earmarked for the construction of deeper wells at these villages.

It is strongly recommended that additional European supervision for these District Inspectors be provided, otherwise they are certain to become thoroughly idle, and to "cook" their monthly returns.

It has been possible to arrange for one of the two Urban Inspectors who possess the Higher Certificate to check the returns sent in monthly by the District men, and he is able to pay occasional visits of inspection to see that something is being done; but there is scope for considerable expansion in this direction, and it is hoped that sanitary inspection and village dispensaries will extend hand in hand, so as to cover the whole district in a few years' time.

The following figures have been extracted from the monthly reports for 1927 :—

Inspector's headquarters.	No. of villages in- spectd.	No. of huts.	Average No. of huts per village.	Popula- tion.	Average popula- tion per hut.	Births.			Deaths.			Vaccinations.		
						Male.	Female.	Total.	Male.	Female.	Child.	Success- ful.	Unsuc- cessful.	Total.
Ruvu ..	20	5,975	298	15,514	2.5	33	58	91	31	35	18	78	34	112
Pugu ..	16	2,734	170	8,106	2.9	159	138	297	87	86	77	—	—	—
Kimbiji ..	16	4,024	256	14,208	3.5	18	22	40	9	5	7	—	—	—
Vikindu ..	23	4,416	191	12,849	2.9	53	68	121	34	37	33	1,208	483	1,691
Kunduchi ..	9	1,155	128	3,605	3.1	25	20	45	7	5	6	925	745	1,670
Kisiju ..	24	3,640	151	9,611	2.6	128	195	323	47	46	41	1,694	329	2,023
Maneromango ..	13	7,288	560	26,120	3.5	141	156	297	103	103	105	—	—	—
Masaki ..	11	2,982	271	9,757	3.2	97	138	235	59	54	27	—	—	—
Mafa ..	14	810	57	1,860	2.2	1	1	2	—	1	—	52	67	119
Over all ..	146	33,024	226	101,630	3.07	655	796	1,451	377	372	314	3,957	1,658	5,615*

\* Add 2,023 in which the result was not recorded.

The above figures, while not pretending to be complete or accurate records of the village statistics, will be useful for comparison in future ; while, if we exclude Mafia, the variation between the highest and lowest average population per hut is very small (2·5 to 3·5), and the difference between the mean of these averages, 3·025, and the average over the whole (still excepting Mafia), 3·097, is again so little as to lead one to believe that the population figures are not altogether valueless.

The figures for births and deaths, however, appear to be useless for comparison : they merely indicate that a certain number of each was reported to the Inspector. The two areas showing a reasonable birth rate give a wide variation in the death rate as under :—

					Birth Rate.	Death Rate.
Pugu	...	...	...	...	36·3	30·8
Kisiju	...	...	...	...	33·6	13·9

It is hoped, however, that greater accuracy will be obtained in the compilation of these figures as time goes on, while it must be borne in mind that the Inspector's returns are not his most important duty ; they are merely our means of endeavouring to know what work he is doing : results will be judged by cleaner villages and the reduction of hookworm disease.

#### PORT HEALTH.

The greater part of the duties of the Port Health Officer consists of the Quarantine Inspection of ships and dhows for the purpose of preventing the introduction of the dangerous Infectious Diseases through the port, and the inspection of passengers—not being natives of the Territory—for the purpose of excluding persons likely to become a charge on the finances of the Territory through physical infirmity or diseases, and those suffering from the more chronic communicable disease, *e.g.*, Tuberculosis, which might cause infection in others.

The Port Health Officer is provided with a motor-boat carrying a crew of four, and has the assistance of a Goan compounder and a native vaccinator.

A new and larger motor-boat is under construction. This will enable the Port Health Officer to visit ships in the outer harbour, convey the rations to Nunge Leprosy Settlement, and transport stretcher cases when required, none of which duties can be performed satisfactorily with the present boat.

#### STATEMENT OF VESSELS CLEARED FROM THE PORT.

				1925.	1926.	1927.
Ships cleared	..	..	..	323	361	480
Dhows cleared	..	..	..	766	974	1,738

A steady annual increase in both steamers and dhows is apparent.

The following table gives particulars of the vessels which were reported on their arrival as having, or having had, infectious disease on board :—

Disease.	Date.	Name of Vessel.	No. of Cases.	How dealt with.
Plague .. ..	May 3rd ..	Le Conte de Lisle ..	2	} Dealt with prior to arrival.
„ .. ..	May 8th ..	Bernadin de St. Pierre ..	2	
Smalipox .. ..	Dec. 29th ..	Canada Maru .. ..	1	Dealt with prior to arrival and mass vaccination carried out.
Enteric fever ..	Oct. 4th ..	Explorateur Grandidier	1	
Chickenpox .. ..	Sept. 7th ..	Matiana .. ..	1	—
Measles .. ..	May 2nd ..	Le Conte de Lisle ..	1	—
Whooping cough ..	April 6th ..	Guildford Castle ..	1	—



On ships carrying a large number of deck passengers the medical inspection of the latter has been found difficult, particularly where space was limited. Inspection rooms on the wharf are now available, and whilst the use of them will entail more time, deck passengers from the small crowded ships can be more readily and thoroughly examined therein.

#### TOWNSHIP AUTHORITY.

The work of the old District Town Planning and Building Committee has now been amalgamated with that of the Township Authority, which simplifies procedure to some extent.

The survey of the town is well in hand, and a large number of sites in the Commercial area have been leased, and many imposing buildings are springing up.

Fifty ordinary meetings of the Authority and one District Town Planning and Building Committee meeting were held during the year ; 127 plans were passed. The number of persons now practising as architects in the town has justified the Authority in requiring an improved standard of drawing in the plans submitted for approval.

The volume of work now dealt with by the Authority has increased to such an extent, owing to the large amount of building that is going on, as to interfere seriously with the public health duties of the Medical Officer of Health, who is Executive Officer to the Authority.

An aspect of the dual function of the Medical Officer of Health which has recently become more apparent to the writer, is seen in the fact that many of the Executive Officer's duties are repressive, and, among the non-native population, it is regretted, frequently detective. Their lack of a sense of civic honesty and a realisation that Township Rules are made to be obeyed, and not merely to be evaded by hook or by crook, doubles the clerical and less pleasant work of the Officer immediately responsible for the administration of the rules, and thus his duties as Executive Officer militate against the position of the Medical Officer of Health as the friend and adviser of the people ; and while the combined duties can efficiently be carried out by a single officer in the earlier stages of development of a town, there comes a time when so much is going on that they are better separated. That time has now arrived in Dar-es-Salaam.

Representations are being made elsewhere as to the need for an Officer of experience in municipal administration who would give his whole time to the work of the Authority and so prepare the way for the eventual formation of a municipality with a Town Clerk.

The need for the revised Township Rules is great, and the writer has to admit responsibility for the delay in their final revision. It has not been possible to obtain the necessary continuous stretch of time to enable him to prepare them for the last stage in their production.

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## TUBERCULOSIS IN DAR-ES-SALAAM.

BY C. WILCOCKS, M.B., CH.B.

## (1) ANALYSIS OF RECORDS.

An examination of the available records for the period 1919–27 shows the following results :—

	Cases notified not admitted to I.D.H.			Cases admitted to I.D.H.			Total all cases.
	Males.	Females.	Total.	Males.	Females.	Total.	
European .. .. .	5	2	7	—	—	—	7
Asiatic .. .. .	19	13	32	4	—	4	36
African .. .. .	34	3	37	92	6	98	135
TOTAL .. .. .	58	18	76	96	6	102	178

A summary of all cases gives :—

Males, all cases.	Females, all cases.	Total.
154	24	178

The results of a search of the records in regard to the Asiatic and African patients admitted to the Infectious Diseases Hospital suffering from tuberculosis is shown below :—

Admitted.	Died in hospital.	Absconded.	Discharged.
102*	55†	16	31

\* 35 of these had been in employment under European control, prior to admission, either in the Medical Department, King's African Rifles, Police, or elsewhere.

† 33 deaths occurred within one month of admission. Of the 47 who absconded or were discharged, 17 are reported to have died. Many are untraced. This gives a death rate of approximately 70 per cent.

An analysis of the records of the cases occurring in 1927 gives the figures tabulated below :—

## (a) NOTIFIED CASES OF TUBERCULOSIS DURING 1927.

	Cases notified (not admitted) to I.D.H.		Cases admitted to I.D.H.		
	Males.	Females.	Males.	Females.	Total.
European .. .. .	3	1	—	—	4
Asiatic .. .. .	7	4	2	—	13
African .. .. .	5	2	28	1	36
TOTAL .. .. .	15	7	30	1	53

## (b) DEATHS FROM TUBERCULOSIS DURING 1927.

Certified (*i.e.*, where the patient was under medical treatment before death)—

At European Hospital .. .. .	2
At Sowa Hadji Hospital .. .. .	3
At Infectious Diseases Hospital .. .. .	16
Certified by private practitioners .. .. .	6
	27
Notified ( <i>i.e.</i> , diagnosis made after death by inquiry from relatives) .. .. .	4
TOTAL .. .. .	31

## (c) DISTRIBUTION OF DEATHS FROM TUBERCULOSIS, 1927.

—	Certified deaths.				Notified deaths.		Total.
	Non-I.D.H.		I.D.H.		Males.	Females.	
	Males.	Females.	Males.	Females.			
European .. .. .	2	—	—	—	—	—	2
Asiatic .. .. .	1	2	2	—	—	—	5
African .. .. .	6	—	13	1	3	1	24
TOTAL .. .. .	9	2	15	1	3	1	31

The outstanding features of these figures are :—

1. The disparity between the number of males and females, both in notifications and in deaths. It is obvious that the numbers given above cannot be a true representation of the facts.

2. The large number of cases admitted to the Infectious Diseases Hospital who were in employment under European control. These are in many cases (*e.g.*, K.A.R., Police, Medical) either advised or compelled to undergo medical examination if discovered to be persistently unhealthy.

3. The high mortality. In this connection further figures are of interest.

Deaths from tuberculosis in relation to deaths from all causes :—

Deaths from all causes.	African deaths : all causes.			African deaths from tuberculosis.		
	Certified.	Notified.	Total.	Certified.	Notified.	Total.
470	117	213	330	20 ( <i>i.e.</i> , 17 per cent.)	4	24

“ Certified ” deaths are deaths of persons who have been examined medically before death.



“ Notified ” deaths are deaths of persons who have not been examined medically before death, but where the diagnosis has been made after inspection of the dead body and by inquiry from the relatives.

The diagnosis of the cause of death under the heading “ notified ” is totally unreliable, and may be disregarded in connection with Tuberculosis.

The total “ certified ” deaths from Tuberculosis in Africans in 1927 was 20. Therefore, of the 117 certified African deaths 20 were from Tuberculosis. It is fair to assume that of the 213 notified African deaths, a proportionate number at least were due to Tuberculosis. Admittedly there is more likelihood of a person suffering from chronic ill-health seeking medical advice than one who becomes suddenly ill, and that therefore more Tuberculosis cases are seen in proportion than, say, Pneumonia ; but on the other hand this fact may be more than counterbalanced by the fact that women are far less ready to be treated than men, and that therefore the main mass of tuberculous women have died unseen and therefore come into the notified class.

Assuming a similar death rate from Tuberculosis among the uncertified deaths to that which has been shown to occur in the case of certified deaths, the mortality from Tuberculosis among Africans becomes 56·4 for the year. The African population of Dar-es-Salaam is about 21,928, which gives a death rate of 2·57 per 1,000 population. On the same reasoning the Asiatic death rate from Tuberculosis was 1·1 per 1,000 population.

The death rate in England in 1925 for all forms of Tuberculosis was 0·98 per 1,000 population.

Briefly, the death rate from Tuberculosis in Dar-es-Salaam (among Africans) is almost three times that in England. Of the certified deaths from all causes among Africans, 17 per cent. were due to Tuberculosis, in England this figure is approximately 10 per cent.

Of the 36 known cases of Tuberculosis certified during 1927 in Africans, 21 have died within one year of notification, a mortality rate of 58·3 per cent.

The Asiatic mortality rate is similarly (13 notified, 6 died) 46·1 per cent. Liverpool's mortality rate for 1925 is similarly 36·5 per cent., and Liverpool has a very high mortality rate from Tuberculosis compared with the rest of England. This evidence confirms the fact that Tuberculosis is especially virulent in the African population.

4. The great majority of cases show Tubercle Bacilli in the sputum at the first examination. These cases are therefore highly infective.

Tubercle in cattle is rare in the Territory, and the rarity of Tubercular Adenitis and surgical Tuberculosis would seem to be consequent upon this.

It is not known if many of the natives dying from other complaints show evidence of healed Tubercle, but the probability is that the disease is comparatively new to the Territory, and is therefore attacking a community which has not acquired any immunity to it, such as is frequently acquired in England.

A series of Von Pirquet tests on normal natives would help to decide this matter.

5. The conditions under which the natives live, and their insanitary habits, make the continued spread of the disease very easy, and this, combined with the virulence and high mortality rate, produces a most unpromising outlook.

## (2) TYPE OF CASES.

There is a striking difference between the cases seen among the Africans in Dar-es-Salaam, and those seen among the English in England. The main difference is in the severity of the disease. Whereas in the English, Fibrous and Fibro-caseous cases are frequently seen, in the Africans such cases are rare. It is common in the English to

find cases in which several examinations of sputum are necessary before the Tubercle Bacillus is found, but in the Africans the first examination, in the enormous majority of cases, reveals the Bacilli, usually in large numbers. A negative finding is a strong argument against the presence of Tubercle in a suspected case and is an indication for a good prognosis in a previously infected case, so long as the patient observes the rules of conduct which obtain in the Infectious Diseases Hospital.

Cavities in the lungs are frequently met and are often of large size, to judge by their physical signs. In such cases the sputa observed have invariably shown Tubercle Bacilli in large quantities. Patients with such cavities frequently live many months, so that evidence is not wanting of protective fibrous reaction, but the fact that I have not yet seen a recovered or recovering case in which even a small cavity could be demonstrated leads to the conclusion that the power of resistance is very inadequate to deal with the infection.

The sites of the lesions are similar to those found in England. In every case I have seen, one or other apex has been involved. Pleural effusion is not common and Hæmoptysis, except in small quantities, often a mere staining of the sputum, is rare. Laryngitis occasionally complicates the disease, and diarrhoea and vomiting, probably due to the swallowed Bacilli, are not infrequent.

In the records for the period 1919-1927 one case only of Tubercular Spine was notified, and that patient had also Tuberculosis of the Larynx. The patient was an Indian woman. I have seen only one case of Tubercular cervical glands (in which aspirated pus showed the Bacilli) and that was in a case of very advanced Pulmonary Tuberculosis. No other cases of adenitis have been notified.

Ankylostomiasis is a frequent complication and no doubt can exist that it adds considerably to the gravity of the prognosis.

### (3) PREVENTION AND TREATMENT.

The measures carried out in connection with the prevention and treatment of Tuberculosis in Dar-es-Salaam at present are as follows :—

1. Notification, which will prove to be of value in the assessment of the importance and severity of the disease.
2. Removal to hospital of all patients who cannot effectively be looked after in their homes. This applies to all Africans.
3. Disinfection by cresol spray, cleansing of walls, etc., and burning of dust of all rooms in which infected people have lived.
4. The new concrete buildings at the Infectious Diseases Hospital completed in March, 1928, provide excellent accommodation for 13 patients, and are designed to give a maximum of light and air. The food provided for these patients is of excellent quality and comprises in addition to ordinary hospital rations, eggs, milk and cod liver oil. The patients are weighed weekly. It is difficult to make the patients understand the value of rest in bed, and therefore to be certain that they carry out orders, but the attempt is made. Graduated exercise would probably be valuable, but is almost certainly not feasible at present.

Tuberculin treatment is not used, but may well be attempted, since it was used by the Germans before the war. They reported that the natives bore treatment by Koch's Old Tuberculin well (Interim Report on Tuberculosis in Equatorial Africa. Balfour and others, 1922).

The natives do not understand the disease and cannot comprehend a treatment consisting of good food and no work, without the active use of medicines or injections. The early cases, after a short stay in hospital, feel better and are most anxious to get away again to their families, hence the large number who abscond. This attitude explains



the refusal of several suitable patients to undergo artificial Pneumothorax recently—the argument being that, as they were perfectly well, the treatment was unnecessary.

5. Routine examination of Sputa by the Laboratory Staff.

6. Routine examination of all cases of Pulmonary Tuberculosis by X-ray. The majority are screened, the exceptional cases are photographed. This should prove to be of great value in the detection of early cases, and has already proved its use in differential diagnosis.

7. Routine examination of all intimate contacts. A full clinical examination is made and the Sanitary Inspector of the district is instructed to keep the contacts under observation by monthly inspections. The value of this in detection of early cases is shown by the fact that the fourth contact examined proved to be a moderately advanced case with Tubercle Bacilli in the Sputum. He was removed to hospital.

It has frequently occurred that a patient has been received into hospital in a moribund condition when he must have been lying helpless for weeks on the floor of a native hut, and infecting his family freely by his sputum.

The examination of contacts should detect those who become so infected at an early stage, and should be especially useful in discovering infected women, who without this intervention would probably never be seen by a medical man. These methods are useful among the known cases and their contacts, but there still remains a large number of infected natives who die without the infection having been discovered, owing to the fact that they have never sought examination. These are a serious public menace. To reduce this grave danger to the community, it is proposed to open a clinic for the treatment of all chest complaints, which would overcome ultimately this difficulty.

## MATERNITY AND CHILD WELFARE IN DAR-ES-SALAAM.

By MADELEINE HARVEY CLARKE, M.R.C.S., L.R.C.P., D.P.H.

The Maternity and Child Welfare clinic was inaugurated at the Health Office on the appointment of a Sister in 1924; the work has been uphill, but the foundation is well established, and the work of this branch of preventive medicine in Tanganyika Territory grows steadily, justifying its existence more and more with each succeeding year; but its advance will necessarily be somewhat tardy as long as the education of the African and especially of the African woman is such a slow process.

The clinic has been carried on by a Health Visitor throughout 1927; for the first six months under the care of Miss Donald and then under Miss Allardes, on her return from leave, during which she obtained the Health Visitor's Certificate of the Royal Sanitary Institute.

In November the writer was appointed Medical Officer in charge of Maternity and Child Welfare, relieving the Assistant Medical Officer of Health who had formerly been in charge. This report can therefore be but a statement of work performed by the clinic staff during 1927.

The clinic building, opened in 1925, and consisting of a model native hut built of the usual native materials, and to the standard size, but modified to meet the needs of the clinic, has been re-roofed and repaired throughout. The attendance at the clinic has increased so much since its inception that the present quarters are rather cramped, and it is hoped that the in-patient accommodation for maternity, gynaecological and children's cases will be considerably increased in the new native hospital, the construction of which is at present under consideration.

The five Native Ayahs continue to work satisfactorily on the whole, although there are many backslidings. This is not to be wondered at when it is realised that these women usually have to be taught to read and to write before they can be given any responsibility.



They are taught, primarily, cleanliness, the elements of nursing, antiseptis, and the management of a normal labour—chiefly non-interference with nature.

It has proved most difficult as yet to instil an idea of surgical cleanliness into the Africans who have been available for training. Even those who have received careful instruction and some hospital training are liable to revert to the practices of their race when they themselves are ill.

The daily out-patient attendance at the clinic is good, averaging just over 40, but it is often difficult to persuade the native woman that it is to her advantage to come into the clinic for her confinement : she prefers her baby to be born on the mud floor of her own hut, surrounded by friends and relations. The greater number of confinement cases admitted are those of women whose husbands are under European control, such as the women of the K.A.R., and it is only in abnormal or difficult cases that European assistance is sought ; usually then it is too late to save the child, and often the mother's life is seriously endangered.

The women are, however, quite ready to bring the babies to be seen a few days after birth. Even if they agree to come into the clinic for the confinement they will not stay long, and it seems better to let them go as soon as they are reasonably fit rather than keep them against their will. When one considers that the native woman will get up and perform her ordinary household duties within 12 hours of giving birth to a child, it will be realised that it is impossible for them to understand why we should wish to keep them even for the 10 days which the English working-class mother spares for her confinement.

There is appalling ignorance with regard to the treatment of ophthalmic conditions. Mild attacks of inflammation are common and clear up almost by themselves, but all conditions seem alike to the mothers, and often it is not until one or both of the child's eyes are irremediably damaged that they are brought for treatment.

In many cases the children are brought by the fathers, who seem to take more interest in the welfare of their offspring than do the mothers.

SUMMARY OF WORK PERFORMED BY THE HEALTH VISITOR.

—					1926.	1927.
<i>Out-visiting—</i>						
Visits to K.A.R. and Police lines	..	..	..	..	—	197
„ <i>re</i> confinements	..	..	..	..	—	4
„ <i>re</i> new births	..	..	..	..	—	29
„ <i>re</i> premature births	..	..	..	..	—	2
„ still births	..	..	..	..	—	1
„ <i>re</i> other conditions	..	..	..	..	—	2,485
TOTAL	..	..	..	..	1,680	2,718

## MATERNITY AND CHILD WELFARE CLINIC.

	1926.	1927.
<i>Admissions to clinic—</i>		
Mothers for confinement .. .. .	24	27
„ in post-natal state .. .. .	—	10
„ in ante-natal state .. .. .	—	9
Abortions .. .. .	—	3
General conditions .. .. .	12	19
Total number of mothers admitted .. ..	36	68
Total number of children admitted .. ..	—	32
Total .. .. .	36	100
Maternal death .. .. .	—	1
Ante-natal examinations .. .. .	—	134
<i>Summary of out-patients—</i>		
New cases—		
Mothers .. .. .	913	1,831
Children .. .. .	1,827	4,082
Total .. .. .	2,740	5,913
<i>Attendances—</i>		
Mothers .. .. .	2,069	7,876
Children .. .. .	6,209	7,931
Total .. .. .	8,278	15,807

Of the maternity cases admitted, 3 per cent. were abnormal; among these the following are of interest :—

- (a) The one maternal death was due to eclampsia. The woman was found in her hut, extremely ill. She was removed to the clinic, the child was removed and survived, but the mother succumbed.
- (b) Two cases of placenta prævia and malpresentation.
- (c) One case of puerperal septicæmia. The mother was admitted after being 48 hours in labour. There was malpresentation, and the child had evidently been dead for some time. There was also evidence of previous attempts at delivery. This case cleared up extremely well on injections of quinine.
- (d) Four cases of complete or almost complete rupture of the perineum. In one case the mother was admitted in labour; the child was partially born. There was evidence of considerable interference and force having been used.
- (e) Four cases retained placenta, two of which were removed manually. In one case the cord was found tied to a large stone to assist delivery of the membranes.

## SIXTH BATTALION, KING'S AFRICAN RIFLES.

The health of the women and children of the K.A.R. is, on the whole, good.

The weekly medical inspection by the Health Visitor has been continued, while since December the Medical Officer (Maternity and Child Welfare) has also attended.

The recent Battalion order enforcing punishment on the men if their wives and children do not attend the weekly inspection has had the effect of greatly increasing the attendances.

The women do not like reporting when pregnant, and it is often hard to persuade them to be examined, while to try and get them voluntarily to come to the clinic for their confinement is difficult.

They report the birth afterwards, and come down to show the child: they seek European help if native treatment fails, but they very much dislike coming in for the actual confinement.

The dispensary is unsuitable for the work now performed, and it is hoped that improvements will be effected during 1928. The inspections are necessarily somewhat cursory, any women who appear to need further examination being detained and examined after the main parade has finished. The sick are advised to attend either the Sewa Hadji Hospital (being nearer to their barracks they prefer this) or the clinic.

#### POLICE BARRACKS.

Owing to the lack of a regular medical parade, such as is held weekly in the K.A.R. Depot, it is impossible to estimate satisfactorily the state of health of the women and children at the Police Barracks. The question of a weekly parade has been submitted, and, if sanctioned, should prove beneficial, especially by the treatment afforded to those who do not consider themselves ill enough to attend hospital.

The barracks are visited weekly, and endeavour is made to search out sick and unvaccinated children and pregnant women. The barrack buildings are not very satisfactory, and many improvements are urgently needed unless the barracks are to be moved to a new site. Some of the quarters receive no natural light at all, and the task of trying to find and deal with sick women is beset with difficulties.

#### GOVERNMENT CENTRAL SCHOOL.

A very marked increase in the attendance at the school has taken place, and a corresponding increase in the total number of attendances at the clinic is also shown.

The number of new cases, however, shows a decrease, as do all conditions which reflect the personal hygiene of the scholars—that is, the skin conditions such as scabies, ringworm and impetigo, and the septic conditions as boils, ulcers and septic sores. The school staff may well congratulate themselves on these figures, which show that the lessons in cleanliness which the sister endeavours to inculcate on her daily visit, together with the school teaching on these subjects, are bearing fruit, and that a higher standard of personal hygiene is gradually being attained.

Every effort must be made to improve this standard, and the institution of an inter-class competition in personal hygiene might be considered, freedom from the diseases specified above indicating the highest standard.

The general health of the school has been good, the number of cases of mild chest conditions also showing a considerable reduction, in spite of an outbreak of mild influenza (119 cases), which occurred in the months of November and December.

The new clinic offers greatly increased facilities for treatment, and is a credit to the scholars of the carpentry class and to Mr. Goodall, under whose supervision it was erected.

The clinic is popular and the children attend eagerly. An African dresser is in charge under the supervision of the Health Visitor, who attends daily.

The appointment of a medical officer to take charge of Maternity and Child Welfare, thus relieving the Assistant Medical Officer of Health of his school medical duties, will, it is hoped, ensure a more strict watch being kept on the general health of the school, and not only on those who present themselves at the sick parades.



All new pupils are medically examined, and vaccinated if necessary, as soon as possible after their entry into the school. A card index system is used and works satisfactorily.

Carbon tetrachloride treatment is given, not only to those who show definite evidence of Ankylostome infection but also to those who show the signs of severe anæmia. It is given on an empty stomach in doses of half a minim for each year of age up to ten years, together with half an ounce of Magnesium Sulphate. The child is kept under observation without food until the bowels have acted. It is too early yet to estimate the result of this "Mass" treatment, but it is hoped to be able to produce evidence of beneficial results during the next year in the increased ability of the pupils to benefit by the instruction given.

A feature at the dispensary is the "lysol bath," in which each small person who needs it has a dip before coming for treatment. This is thoroughly enjoyed, and is quite apart from the ordinary bathing place which each child is expected to use daily.

This lysol bath assists materially in the reduction of the incidence of such common school diseases as scabies and impetigo.

The lavatory accommodation is entirely inadequate and unsatisfactory for the present number of pupils. A reconstruction scheme is being prepared, and it is hoped the work will be begun in 1928.

#### SUMMARY OF WORK PERFORMED AT THE SCHOOL CLINIC.

	1926.	1927.
Average number of scholars on roll .. .. .	310	428
„ daily attendance .. .. .	257	392
New cases attending at clinic .. .. .	3,743	3,110
Total attendances .. .. .	19,777	27,458
Cases referred to hospital .. .. .	57	99
„ „ dentist .. .. .	51	66
Specimens sent to laboratory .. .. .	310	286

#### CASES TREATED.

1. Pulmonary .. .. .	Pneumonia and Bronchitis .. .. .	165
	Pulmonary Tuberculosis .. .. .	1
	Mild Chest Conditions (Influenza, 119) .. .. .	458
2. General Infections .. .. .	Measles .. .. .	10
	Tick Fever .. .. .	1
	Pyrexia of uncertain origin .. .. .	427
	Malaria .. .. .	42
	Yaws (15 in 1926) .. .. .	42
3. Skin .. .. .	Scabies (332 in 1926) .. .. .	193
	Jiggers (98 in 1926) .. .. .	72
	Tinea and "Mba" (433 in 1926) .. .. .	140
	Impetigo (128 in 1926) .. .. .	65
4. Helminthic .. .. .	Ankylostomiasis (29 in 1926) .. .. .	107
	Bilharzia .. .. .	19
5. Other conditions .. .. .	Indigestion, Constipation, etc. .. .. .	307
	Diseases of the Eye .. .. .	121
	„ „ Throat .. .. .	26
	„ „ Ear .. .. .	56
	Boils, Ulcers and Septic Sores, etc. (629 in 1926) .. .. .	446
	Headache, Toothache .. .. .	69
	Injuries (238 in 1926) .. .. .	342
	Unclassified .. .. .	127

# EXTRACT OF A REPORT ON THE PUBLIC HEALTH OF TANGA FOR THE YEAR 1927.

By DR. R. NIXON, M.B., Ch.B., D.T.M., D.P.H. (Liv.), SANITATION OFFICER, TANGA.

## PUBLIC HEALTH.

The general health of the local population during 1927 has been satisfactory.

The only serious outbreak of infectious disease was the Influenza epidemic of December, in which 30 to 40 per cent. of the general population was attacked. The type of the disease was mild and the deaths few, but the numerical extent of the epidemic has a big effect on the morbidity returns of the year.

## VITAL STATISTICS.

### *European.*

No European death occurred in the town throughout the year. Three deaths occurred in the district, two from accidents and one from blackwater.

The comparative figures of the last four years are :—

			1924.	1925.	1926.	1927.
Population	...	...	267	327	320	374
Deaths	...	...	5	3	6	3
Death rate	...	...	18·7	9·2	18·7	8·0
Births	...	...	7	8	9	16
Birth rate...	...	...	26·2	24·5	28·1	42·8

## MORBIDITY.

The European cases treated at Tanga Hospital (in-patients and out-patients) were 520 as compared with 483 in 1926.

The chief causes of European sickness were as follows :—

Influenza	...	...	...	72
Malaria	...	...	...	59
Cuts and wounds	...	...	...	28
Ulcers, abscesses, etc.	...	...	...	46

The following were also recorded :—

Amœbic dysentery	...	...	...	2
Schistosomiasis	...	...	...	2
Pulmonary tuberculosis	...	...	...	1

### *African.*

The African births reported for town and district are 509, and the deaths 460, which would give a birth rate and death rate of approximately 5 per 1,000. This is obviously absurd. The real reason of the low figure is the failure of the Jumbes to make even approximately accurate returns.

## INFANT MORTALITY.

The European infant mortality rate is nil (16 births and no infant deaths).

The Asiatic figures of the town (quite inaccurate owing to the failure of the parents to notify births) are 36 births and 20 infant deaths, a rate of 555 per 1,000.

The African figures (almost equally unreliable owing to failure of notification) are :—

				Births.	Infant deaths.	Infant mortality rate.
Town	...	...	...	70	19	271
District	...	...	...	439	61	139

No confidence can be placed on any but the European figures.

## AFRICAN MORBIDITY.

*Tanga Hospital Returns.*

			1925.	1926.	1927.
Out-patients	...	...	11,106	11,354	14,626
In-patients	...	...	1,168	1,723	1,958
Total	...	...	12,274	13,077	16,584
Deaths	...	...	80	67	149
Case-mortality	...	...	6	5	9

## INFECTIOUS DISEASES HOSPITAL.

Total admissions were 56 and deaths 9.

				Admissions.	Deaths.
Acute pulmonary tuberculosis	...	...	...	14	9
Measles	...	...	...	22	0
Chickenpox	...	...	...	14	0
Mumps	...	...	...	3	0
Leprosy	...	...	...	1	0
Yaws	...	...	...	1	0
Secondary syphilis	...	...	...	1	0

## WELFARE CLINIC.

New cases seen by Welfare Visitor :—

Women	...	...	...	1,888
Children	...	...	...	2,460

Of these numbers the following attended Ngamiani Welfare Clinic :—

Women	...	...	...	1,340
Children	...	...	...	992

A most encouraging feature of this clinic is the steady increase in attendances. The new cases of each quarter of the year are as follows :—

January-March	...	...	...	...	...	359
April-June	...	...	...	...	...	539
July and September (two months only)	...	...	...	...	...	401
October-December	...	...	...	...	...	1,033

## SCHOOL CLINIC.

1,329 cases were treated at this clinic during 1927. Details are given in the attached report on Tanga School.

## POLICE LINES CLINIC.

149 women and 139 children attended at this clinic.

## MOSQUITO AND ANTI-MOSQUITO WORK.

The anti-mosquito work of 1927 was rendered very difficult by the extraordinary rainfall of the year. Not only was the total fall greatly in excess of other years, but it was so distributed as to render considerable assistance to the breeding of mosquitoes. The house infestation of mosquitoes was generally slightly higher than last year, particularly during the periods March to June and October to December.



The following table gives the larval collections and the rainfall month by month.

—				Culex.	Stegomyia.	Anopheles.	Others.	Total.	Inches of rain.
January	..	..	..	108	33	3	1	145	0.0
February	..	..	..	58	24	1	2	85	0.8
March	..	..	..	253	42	1	2	298	16.4
April	..	..	..	226	122	5	1	354	3.2
May	..	..	..	218	126	10	—	354	9.7
June	..	..	..	197	83	9	—	289	1.6
July	..	..	..	271	69	—	1	341	1.1
August	..	..	..	232	62	1	—	295	1.6
September	..	..	..	263	142	3	4	412	6.8
October	..	..	..	250	207	12	—	469	12.4
November	..	..	..	283	172	27	—	482	3.7
December	..	..	..	212	123	30	3	368	5.2
TOTAL..				2,571	1,205	102	14	3,892	62.5

<i>i.e.</i> —						Per cent.
Culex	..	..	..	..	..	66.1
Stegomyia	..	..	..	..	..	30.9
Anopheles	..	..	..	..	..	2.6
Others	..	..	..	..	..	0.4

The comparative larval collections of the last four years is :—

1924	...	...	...	...	3,664
1925	...	...	...	...	4,022
1926	...	...	...	...	3,936
1927	...	...	...	...	3,892

A more detailed comparison with last year is :—

—				Culex.	Stegomyia.	Anopheles.	Others.	Total.	Rainfall.
1926	..	..	..	2,084	1,725	105	22	3,936	43.2
1927	..	..	..	2,571	1,205	102	14	3,892	62.5

It is satisfactory to find the general mosquito figure (and the Anopheline figure) slightly lower than during last year, in spite of the extra 20 inches of rain that fell in 1927.

The Culex figure is the only one showing an increase, but as Culex fatigans forms 99 per cent. of the house-infesting mosquitoes of Tanga, this increase has meant a rather higher degree of house infestation during this year.

The Anopheline collections of 1927 were taken almost entirely on the outskirts of the native town, in the Tabora, Pangani Road and Kwaminchi areas. The European town remains almost entirely free from Anophelines, and a primary attack of malaria acquired in the town is still very exceptional.

The Stegomyia collections (of which 65 per cent. are *ædes ægypti*) form 30 per cent. of the whole. This genus is stated (in a mosquito diagram published by the Liverpool School of Tropical Medicine) to infest houses to a greater degree than either Culex or Anopheles. As regards Tanga, at any rate, this statement is entirely inaccurate. Although 30 per cent. of the larval collections are Stegomyia, adult Stegomyia mosquitoes form much less than 1 per cent. of the mosquito-count in houses.

The house mosquito of Tanga is *Culex fatigans*. In no month have I found the house collections to contain more than 1 per cent. of other species, and in some months the collections are 100 per cent. *Culex fatigans*, with monotonous regularity. The species in Tanga breeds in water in almost any situation, from a tree to a cesspit, from a bottle to a swamp. From choice, it seems to prefer water containing sewage, and it is in pits, old drains and similar places that our largest collections have been made.

Obviously, searching of tanks, wells, tins, etc., must be continued regularly, but I think the cesspits of the town need the greatest attention if this species is to be materially reduced. Colonel Skelton dismissed the pits in Tanga as playing any material part in mosquito breeding, on the grounds that the mosquito nuisance was seasonal and dependent on rain, while the pits were present throughout the year. The obvious fallacy in this statement is that a soakagepit in dry weather will soak up a large amount of water and will frequently be quite dry for several hours daily, while in the rainy season, with the subsoil water-level rising, and perhaps a large bulk of storm-water entering the pit, a water surface is maintained in the pit for weeks on end.

The breeding places of the collections of mosquito larvæ found during 1927 were :—

—	Culex.	Stegomyia.	Anopheles.	Others.	Total.
In tanks and barrels .. .. .	722	395	4	2	1,123
In pots and jars .. .. .	208	202	3	2	415
In wells and waterholes .. .. .	486	70	26	3	585
In pits .. .. .	217	48	1	—	266
In tins .. .. .	236	253	—	1	490
In drains .. .. .	430	73	11	1	515
In pools .. .. .	121	13	55	1	190
In trees .. .. .	24	66	—	3	93
In other casual water .. .. .	127	85	2	1	215
	2,571	1,205	102	14	3,892

—	Culex.	Stegomyia.	Anopheles.	Others.	Total.	Per-centage.
In household receptacles .. .. .	932	597	7	3	1,539	39
In wells and water-holes .. .. .	486	70	26	3	585	16
In pits .. .. .	217	48	1	—	266	7
In casual water .. .. .	936	490	68	8	1,502	38

This table does not, however, show the comparative importance of the above breeding places in turning out adult mosquitoes, *e.g.*, a collection of larvæ in a tin is seldom very large and probably averages 20–30 larvæ in a collection. A defective pit that escapes detection for a week or two in the rainy season may contain many thousands of larvæ. I consider it probable that far more than half the mosquitoes of the town take their origin from cesspits and soakagepits.

#### ROUTINE ANTI-MOSQUITO MEASURES.

##### *Inspections.*

	1925.	1926.	1927.
Premises ... ..	133,546	107,521	143,963
Drains ... ..	17,193	23,164	16,044
Pits ... ..	131,886	177,165	120,056
Wells... ..	21,418	16,935	20,805
Tanks and Barrels ...	261,623	234,091	317,598

In addition to this, 343,000 linear feet of drain-cleaning and 850,000 square yards of grass-cutting have been done during the year.

The Mosquito-Index  $\left(\frac{\text{Collections} \times 100}{\text{Inspections}}\right)$  is as follows for the last four years :—

1924	...	...	...	...	...	...	...	5·6
1925	...	...	...	...	...	...	...	3·0
1926	...	...	...	...	...	...	...	3·7
1927	...	...	...	...	...	...	...	2·7

#### MALARIA.

The Anophelines of Tanga are few and largely confined to the fringes of the native town. Primary infection within the township is very rare, particularly amongst Europeans, and the malaria figures given below consist, for the most part, of cases infected up-country or recurrent attacks of old infections.

Tanga Hospital returns show :—

					Europeans.	Non-Europeans.
1924	...	...	...	...	34	762
1925	...	...	...	...	50	1,210
1926	...	...	...	...	40	1,622
1927	...	...	...	...	59	1,200

Malaria cases in Tanga Government School were 110 as compared with 132 last year.

66 women and 49 children were treated for malaria at Ngamiani Clinic, and 8 women and 6 children at the Police lines clinic.

Of the other mosquito-borne diseases, *Filariasis* shows an increase over last year's figure from 20 to 43 cases.

#### DENGUE.

Dengue has not occurred in typical form. A dengoid rash was noted in five Europeans suffering from pyrexia during the influenza epidemic of December, but was not accompanied by dengue pains or temperature chart. These cases were diagnosed as influenza.

#### SMALLPOX.

No case of smallpox occurred in town or district during 1927. The post-war smallpox record is :—

							Cases.	Deaths.
1920	...	...	...	...	...	...	1,823	752
1921	...	...	...	...	...	...	412	136
1922	...	...	...	...	...	...	82	16
1923	...	...	...	...	...	...	81	16
1924	...	...	...	...	...	...	—	—
1925	...	...	...	...	...	...	1	—
1926	...	...	...	...	...	...	1	—
1927	...	...	...	...	...	...	—	—

#### VACCINATIONS.

1,298 travellers were vaccinated at the Health Office. As they were not seen again the percentage of successes is not known. 156 schoolboys were vaccinated, of whom 44 reacted, a satisfactory percentage in view of the fact that the majority were re-vaccinations.

440 vaccinations were performed at Ngamiani Clinic and 693 in the town. The number of successes was 210 and 287, a percentage of 44.



## INFLUENZA.

Brief reference has already been made to this epidemic, which attacked town and district in December.

72 Europeans and 698 non-Europeans were treated at Tanga Hospital. No European died, but 3 Asiatic and 15 African deaths were reported in the town.

These case figures convey no adequate impression of the extent of this epidemic. Probably 4,000 natives in the town were affected, and certainly thousands in the sub-districts. The type of disease was fortunately mild, consisting of about five days' pyrexia and malaise, but occasional cases showed relapses, hyperpyrexia or pulmonary sequelæ. Pneumonia was probably responsible for most of the district deaths from this outbreak.

## BERI-BERI.

In November reports from the District Officer, Korogwe, from Missions and from District Native Sanitary Inspectors described a severe epidemic ranging from Amani to Buiti, and believed to be beri-beri.

Sub-Assistant Surgeon Abraham visited Amani and spent six days endeavouring to trace cases. He found the village of Mlesa deserted, and was informed that 13 deaths had occurred. He was unable to find any acute cases in the Amani district, and such convalescent cases as he examined had made a complete recovery and presented no diagnostic features.

He concluded on histories that the epidemic had probably been one of influenza, short but severe. The probability was increased by the occurrence of several cases of influenza, European and native, in Tanga towards the end of the month. Reports, however, continued of deaths in the Buiti area, and I visited Maramba, Gombero and Buiti. I was able to find one acute case and some convalescents in the village of Mwele. The convalescents presented no lesions on which a diagnosis could be formed. The salient point of the acute case, described to me as typical of the cases who had died, were as follows :—

Six days' illness with increasing loss of power in the legs, headache, fever and constipation.

The patient had a temperature of 99·2 and a pulse of 140. He complained of distress from the tachycardia, and of five days' constipation. There was paresis and hyperæsthesia of both legs without anæsthetic patches. There was no rigidity or tenderness of the neck. I could find no trace of œdema or of any heart or lung organic lesion.

I made a diagnosis of beri-beri, and advised treatment and preventive measures. The epidemic abated.

There were, however, several interesting features in this outbreak. The local natives were convinced that the disease was an acute infection. Several cases were reported to me where shamba labourers, owing to weakness in their legs, had left work and returned to their homes on the hills. Members of the households to which they returned had then been attacked by an acute form of the disease, with paresis and tachycardia, and had died within a few days. The diet of the shamba labourers is largely mohogo, and deficiency disease is easily understood ; but the diet of some of the hill people who have died without leaving their homes appears well mixed and adequate.

Subsequently I obtained fresh and stained blood films from 11 other patients in the area. No trypanosome was found in any. Sub-inoculations from two cases into rats were also negative. The epidemic steadily abated, and at the end of the year new cases were rare.

## ANKYLOSTOMIASIS.

There are grounds for supposing progress to have been made in combating this disease. In the town the number of cases decreases yearly. The town clinics treated 134 cases and the school clinic 3 only. Tanga Hospital, which receives patients from all the sub-districts, reports 1,121 cases as compared with 1,284 last year.

The anti-hookworm campaign was centred at Muheza. All cases reporting sick with the disease have been treated with carbon tetrachloride. Educational propaganda has been carried on through the chief, the elders and the school. The new public latrine has been a marked success, and indiscriminate defecation in and about the town has practically ceased.

The following is the evidence available as to the amount of success achieved by the measures taken.

(I) *Magila Mission Hospital.*

This hospital is three miles from Muheza, but receives patients from as far as Pangani and Korogwe. The following are records from the Mission books :—

		Out- patients.	Hookworm cases.	Per- centage.
1922 and 1923	...	1,355	338	25
1924 and 1925	...	No records available.		
1926 and 1927	...	4,111	570	14

The Mother Superior states that the reason of the actual increase in cases is due to the large numbers now coming from Mnyussi-Korogwe area, and concludes her letter, "Round about Muheza hookworm is less."

(II) *Muheza School.*

Of the 70 scholars now attending, only one shows signs or symptoms of ankylostomiasis.

Of 64 seen in June, 1925, 11 were markedly anæmic and received treatment.

During the year 1926 the percentage of absenteeism from the school was 40 (from all causes). During 1927 the percentage was 31.

(III) *Muheza Local Labour.*

These figures are obtained from the Labour Officer at Muheza, and refer to shamba labour only.

The numbers receiving treatment at Magila for ankylostomiasis are as follows :—

1926—								
September	...	...	...	...	...	...	...	11
October	...	...	...	...	...	...	...	10
November	...	...	...	...	...	...	...	2
December	...	...	...	...	...	...	...	2
1927—								
January	...	...	...	...	...	...	...	—
February	...	...	...	...	...	...	...	—
March	...	...	...	...	...	...	...	1
April	...	...	...	...	...	...	...	4
May	...	...	...	...	...	...	...	3
June	...	...	...	...	...	...	...	—
July	...	...	...	...	...	...	...	5
August	...	...	...	...	...	...	...	4
September	...	...	...	...	...	...	...	5
October	...	...	...	...	...	...	...	2
November	...	...	...	...	...	...	...	2
December	...	...	...	...	...	...	...	1

There are no records prior to September, 1926.

(IV) *Tanga Hospital.*

The records of Tanga Hospital show a slight decrease as regards ankylostome incidence (1,284 cases during 1926 compared with 1,121 of 1927).

Tanga Hospital draws few patients from Muheza owing to the proximity of Magila Hospital.

On the whole the evidence points to material reduction in the disease having resulted from the campaign, and native local opinion, as far as I have been able to test it, agrees with this.

Latrine accommodation for natives is unsatisfactory on all the local shambas and entirely lacking in most. The correction of this defect is the most important anti-hookworm measure required at present in the district.

The deaths reported by the Jumbes as due to hookworm are as follows. The value of these figures is, however, almost negligible :—

1924	...	...	...	...	...	...	...	241
1925	...	...	...	...	...	...	...	149
1926	...	...	...	...	...	...	...	176
1927	...	...	...	...	...	...	...	119

## SCHISTOSOMIASIS.

174 cases were treated at Tanga Hospital as against 149 in 1926. The majority were under 20 years of age. The cases in the Tanga School are :—

1924	...	...	...	...	...	...	...	27
1925	...	...	...	...	...	...	...	49
1926	...	...	...	...	...	...	...	8
1927	...	...	...	...	...	...	...	5

## YAWS.

Cases treated at Tanga Hospital show a slight increase over last year, being 1,642 against 1,561.

## TUBERCULOSIS.

80 cases of pulmonary tuberculosis (including one European official) were treated at Tanga Hospital. The more acute cases were removed to the Infectious Diseases Hospital. The figures of the last three years are :—

							Cases.	Deaths.
1925	...	...	...	...	...	...	57	20
1926	...	...	...	...	...	...	47	34
1927	...	...	...	...	...	...	80	18

## SYPHILIS AND GONORRHOEA.

Syphilis cases show an increase from 346 to 398 and gonorrhœa cases a decrease from 236 to 186.

The early syphilitic cases are unsatisfactory owing to refusal to complete any long course of treatment.

## LEPROSY.

Lepers are transferred to the isolation camp at Mtindiro in the Gari hills. They receive treatment from the adjacent U.M.C.A. hospital and are fed, clothed and inspected from Tanga. The camp is a small one, the number of lepers varying from 14 to 17. There were 14 in residence at the end of the year.



## PORT HEALTH WORK.

The shipping entering the port shows a further annual increase. The steamers and dhows inspected during the last three years are as follows :—

						1925.	1926.	1927.
Steamers	...	...	...	...	...	200	243	283
Dhows	...	...	...	...	...	697	797	864

The shipping cleared inwards during 1927 was 751,161 tons and outward 753,626 tons.

No case of infectious disease was reported as entering through the port in 1927.

## SLAUGHTER-HOUSE RETURN.

In the absence of veterinary staff at Tanga the supervision of the slaughter house, the inspection of animals before slaughter and of all meat before exposal for sale continues to be carried out by the staff of this office.

During 1927, 5,482 animals were inspected, 9 carcasses and 1,710 portions of carcasses (chiefly lungs, livers or spleens) were condemned and destroyed.

## GENERAL SANITATION.

The methods of water supply and of excreta disposal described in previous annual reports are unchanged. In spite of this the incidence of water-borne intestinal disease has been extremely low. One cannot too much emphasize the fact that the well system of water supply as used in Tanga is crude, inadequate and dangerous. The supply provided by the deep lined wells is insufficient and is eked out from a number of shallow waterholes, many of which are open to both surface and subsoil contamination. An unfair burden is inflicted on all sections of the community by the necessity of drawing their water from the wells and transporting it to their homes. It is hardly necessary to repeat that where water is difficult to obtain the level of communal cleanliness inevitably falls. No sanitary requirement compares in importance with a pure and sufficient water supply.\* Some improvement has been effected with the storm-water drainage of the European town although much more remains to be done. A drain has been regraded from Market Street to the sea which will prevent the dangerous and unsightly flooding which used to occur at the west end of Market Street. Other drains in King Street and in Customs Road have been resurfaced and repaired to prevent water stagnating in small pockets and backwaters.

The storm-water drainage of the native town is inefficient and large areas become swamp-land or ponds after heavy rain. In particular the area immediately south of the Ngamiani railway crossing, perhaps the most important part of the native town, is covered with three or four feet of water after a few inches of rain have fallen. The reason of this particular pond forming is that the culvert beneath the crossing is of insufficient bore to deal with a heavy head of storm water. The District Engineer has been requested to enlarge this culvert, and it is hoped the work will shortly be put in hand.

Grass-cutting, refuse collection and anti-mosquito work have all been rendered more difficult during 1927 by the heavy and widely distributed rainfall. In addition, the increasing work of the port has reduced the quantity and quality of applicants for work as sanitary labourers. 850,000 square yards of grass-cutting has been done and the overgrowth is being steadily reduced at the end of the year. 23,472 cartloads of refuse have been collected and destroyed at the central incinerator. The actual burning is at present being carried out between 4 and 7 p.m. owing to the nuisance created in neighbouring houses and offices when the burning was continuous.

\* £13,000 has been included in the Public Works Estimates for the provision of a water supply—A.H.O.

In August a new system of milk supervision was instituted. The milk supply of Tanga is brought in from districts several miles away. The milk is now inspected at the Health Office before its distribution for sale in the town and the gross adulteration which used to be almost universal amongst the vendors has ceased. There has been an improvement not only in the milk but also in the cleanliness of the vendors and their utensils.

A rat-catcher has been employed by the department for work in the town. He has trapped 3,863 rats during the year. I have inspected 527 of them, 303 of which were *Rattus rattus rattus* and 224 *Rattus rattus alexandrinus*. None showed any signs of plague nor has any case been reported.

#### HOUSING AND TOWN PLANNING.

The expansion of the shipping of the port and the business of the town and district has already been mentioned. The European population of the town has increased from 150 to 224. Only 11 new buildings of a European type have been erected or are in course of erection, and the increase of population has led to overcrowding and rent-inflation particularly in the Asiatic area. The new Europeans tend to rent houses in the Chumbageni area previously occupied by Goans, the dispossessed Goans then moving to the better type of African house in this area or to rooms in the Indian bazaar. It is desirable that the European town should expand not westward through Chumbageni but north-east on to Ras Kazone. The Township Authority have recommended that the Ras Kazone area should be reserved for residential purposes, and that land should be acquired for road development. Plots have been surveyed between the hospital and the Port House which will be sold in 1928. It is anticipated that building on these plots will commence almost immediately after the sale.

Native applications for house sites are increasing. The native town is expanding on the Pangani and Muheza Roads and the area between them.

The applications sanctioned by the Township Authority during 1927 are as follows :—

Permits to build houses	...	...	...	...	...	11
Permits to repair houses	...	...	...	...	...	69
Permits to build huts	...	...	...	...	...	126
Permits to repair huts	...	...	...	...	...	654

#### FOOD IN RELATION TO HEALTH.

Generally the crops of the district have been good and there is no scarcity of food. Reference has already been made to the beri-beri epidemic.

The food condemned and destroyed as unfit for consumption (in addition to the meat already quoted) was as follows :—

Milk	...	...	...	...	...	...	221 tins.
Onions	...	...	...	...	...	...	1 bag.
Currants	...	...	...	...	...	...	28 lbs.

#### EDUCATIONAL.

Propaganda on health and preventive medicine is carried out in the district by African District Sanitary Inspectors stationed in the large villages and visiting the smaller ones. The more important facts and figures supplied by them have been already embodied in earlier sections of this report.

Very valuable educational work has been performed by the Health Visitor in Ngamiani who has conducted confinements both in the Welfare Clinic and in native huts and has instructed mothers in child welfare.

A class of five school boys is under training by the Health Visitor in the elements of dressing and preventive medicine.

### METEOROLOGY.

#### *Rainfall.*

The monthly rainfall in inches compared with the average of the preceding six years is as follows :—

—	Average (1921-26).	1927.	Increase or decrease.
January .. .. .	3	—	— 3
February .. .. .	2	1	— 1
March .. .. .	3	16.5	+ 13.5
April .. .. .	12	3	— 9
May .. .. .	9	10	+ 1
June .. .. .	3.5	2	— 1.5
July .. .. .	2.5	1	— 1.5
August .. .. .	3	1	— 2
September .. .. .	2	7	+ 5
October .. .. .	2.5	12.5	+ 10
November .. .. .	3.5	4	+ 0.5
December .. .. .	2	5	+ 3
	48	63	+ 15

The total rainfall was 15 inches above the average and 20 inches above that of last year.

#### *Temperature.*

Detailed temperature figures are given below.

Comparative figures are valueless as the thermometers were removed from the Health Office to the "Stevenson" screen in the middle of the year.



## SUMMARY OF METEOROLOGICAL OBSERVATIONS—TANGA, 1927.

Month.	Total rainfall.	Average daily rain.	Mean maximum.	Mean minimum.	Mean at 9 a.m.	Dry bulb, 9 a.m.	Wet bulb, 2 p.m.	Wet bulb, 9 a.m.	Wet bulb, 2 p.m.
		m.m.	Cent.	Cent.	Cent.	Cent.	Cent.	Cent.	Cent.
January .. ..	1.5	0.048	29.50	27.00	28.25	26.00	29.00	24.10	25.20
February .. ..	19.0	0.68	30.10	28.00	29.05	28.70	29.90	24.70	25.50
March .. ..	411.6	13.25	28.30	26.80	27.55	27.40	28.50	25.00	25.20
April .. ..	78.1	2.60	29.05	27.30	28.17	27.80	29.00	25.20	25.40
May* .. ..	247.2	7.97	27.70	24.90	26.30	25.70	26.90	23.70	24.00
June .. ..	40.4	1.30	28.10	21.10	24.60	23.60	27.50	22.20	22.90
July .. ..	27.8	0.89	27.27	20.07	23.67	24.02	26.43	21.23	21.49
August.. ..	42.5	1.37	27.66	20.32	23.99	23.97	26.70	21.81	22.01
September .. ..	173.6	5.78	28.00	20.56	24.28	24.77	27.19	22.38	22.43
October .. ..	316.4	10.20	28.89	21.58	25.23	25.70	27.72	23.47	24.20
November .. ..	95.1	3.17	31.08	22.37	26.72	27.53	31.15	24.85	25.16
December .. ..	131.2	4.23	31.24	23.95	27.59	27.90	30.40	25.50	25.80
TOTAL .. ..	1,584.4	—	346.89	283.95	315.40	313.09	340.39	284.14	289.29
MEAN .. ..	4.34	—	28.907	23.66	26.28	26.09	28.36	23.67	24.10

\* Thermometers removed from Health Office and placed in a "Stevenson" screen in an open space of ground on the sea front near the Boma on May 27th, 1927, at 3 p.m.

## REPORT ON THE HEALTH OF TANGA SCHOOL FOR 1927.

The condition of the school children as a whole is excellent. They are well nourished and physically and mentally active. The cases of disease treated at the School Dispensary during the year numbered 1,329. Numerically the most important item in the list of diseases is, as usual, local injury. These cases comprising cuts, bruises and ulcers, chiefly of the feet and legs, number 594. They are for the most part the trivial surface lesions of normal schoolboy life and are responsible for very little absence from work. The most important of the other causes of sickness are as follows. The 1926 figures are appended for comparative purposes :—

							1927.	1926.
Malaria	...	...	...	...	...	...	110	132
Ankylostomiasis	...	...	...	...	...	...	3	12
Schistosomiasis	...	...	...	...	...	...	5	8
Yaws...	...	...	...	...	...	...	20	44
Influenza	...	...	...	...	...	...	60	79
Measles	...	...	...	...	...	...	5	59
Scabies	...	...	...	...	...	...	57	168

Minor chest cases were 145, intestinal disturbances 98, and conjunctivitis cases 49.

There has been a general decline in the cases of infectious disease. Hookworm cases continue to be less each year and are now almost negligible in the town. The five measles cases occurred in the early part of the year and were the end cases of the fairly heavy epidemic of December, 1926.

The comparative influenza figures are not a correct indication of the incidence of this disease for, while the 79 cases of 1926 were evenly distributed throughout the year and generally mild in type, the 60 cases of 1927 all occurred in December, 7 developed pneumonia and the epidemic did not touch its height until after the school had closed. Although there were no deaths among Tanga schoolboys the number of cases was probably nearer 200 than the 60 shown.

The later stages of the epidemic coincided with the school holidays and during this period a large number of natives in town and all sub-districts were attacked.

156 vaccinations of schoolboys were performed. All boys without adequate scars were revaccinated.

Venereal disease in the school is almost negligible. In a complete parade of the boys in October I found only one with any visible sign of syphilis or gonorrhœa.

An outstanding feature in a general inspection of Tanga schoolboys is the condition of their teeth which compares very favourably with that of elementary school children in England. The teeth of the majority of Tanga schoolboys may fairly be described as perfect.

## BUILDING, ETC.

Schoolrooms and dormitories are clean and tidy. One infestation of dormitories by bugs was promptly dealt with ; few body vermin are found. The scabies cases show a welcome decline from previous year.

The latrine system is not satisfactory. A trough closet has been built but is not in use owing to the lack of septic tanks or pits big enough for the purpose. It is hoped that an improvement will be effected here in the coming year.

## SUMMARY OF THE ANNUAL SANITATION REPORT FOR TABORA.

By DR. W. J. AITKEN, M.B., CH.B. (GLAS.), D.T.M. & H. (LIV.), SANITATION OFFICER,  
TABORA.

## VITAL STATISTICS—TABORA PROVINCE.

*Population.*—The following figures have been received from the Provincial Commissioner, Tabora, giving population of the four districts in the Province :—

Year.	Europeans and Whites.	Africans.	East Indians.	Chinese and Malays.	Mixed and Coloured.
NZEGA DISTRICT—					
1926 .. .. .	6	153,500	80	—	50
1927.. .. .	17	153,500	150	—	300
KAHAMA DISTRICT—					
1926.. .. .	19	76,000	34	—	32
1927.. .. .	22	75,868	18	—	15
TABORA DISTRICT—					
1926.. .. .	230	178,800	1,275	—	10
1927.. .. .	250	184,000	1,500	—	100
SHINYANGA DISTRICT—					
1926.. .. .	81	150,550	Not available	—	223
1927.. .. .	35	144,450	90	—	130

*Europeans.*

	Males.	Females.	Total.
Births notified ... ..	4	3	7
Stillborn ... ..	Nil.	Nil.	Nil.
Deaths under 1 year ... ..	Nil.	Nil.	Nil.
Total deaths notified ... ..	1	1	2
Classified as follows—			
Carcinoma ... ..	—	—	1
Pulmonary Tuberculosis ... ..	—	—	1

*Asiatics.*

Births notified ... ..	12	10	22
Deaths under 1 year ... ..	—	—	—
Classified as under—			
Respiratory Diseases—			
Pulmonary Hæmorrhage ... ..	—	—	1
Intestinal Diseases—			
Marasmus ... ..	—	—	1
Insect-borne Diseases—			
Malaria ... ..	—	—	3
General Diseases—			
Prematurity ... ..			2
Convulsions ... ..			1
	—	—	3
	7	1	8



				Males.	Females.	Total.
Total deaths notified	...	...	...	—	—	—
Classified as follows—						
Respiratory Diseases—						
Pneumonia	...	...	...	—	—	3
Intestinal Diseases—						
Marasmus	...	...	...	—	—	1
Insect-borne Diseases—						
Malaria	...	...	2			
Blackwater Fever	...	...	6			
				—	—	8
General Diseases	...	...	...	—	—	15
				20	7	27

## VITAL STATISTICS—TABORA TOWNSHIP.

*African Natives.*

				Males.	Females.	Total.	Per-centage.
Total African Native deaths notified	...			133	131	264	—
Classified as follows—							
Respiratory Diseases	...	...	...	—	—	76	28·9
Intestinal Diseases	...	...	...	—	—	36	13·6
Insect-borne Diseases...	...	...	...	—	—	58	21·9
Infectious and Contagious Diseases...				—	—	6	2·3
Helminthic—							
Dysentery	...	...	...	—	—	13	4·9
Epidemic	...	...	...	—	—	1	0·4
Malignant Diseases—							
Carcinoma of Liver	...	...		2	—	—	—
Carcinoma of Uterus	...	...		1	—	—	—
Retroperitoneal Sarcoma	...	...		1	—	—	—
				—	—	4	1·5
General Diseases	...	...	...	—	—	70	26·5
Death rate per 1,000 living	...	...		—	—	19	—

The number of deaths is probably accurate, but the death rate is difficult to calculate accurately as the population is not definitely known, but merely taken as 13,000 as the nearest probable figure.

The death rate is increased in comparison with 1926, due to the increased number of deaths from "Fever."

As regards the seasonal incidence, deaths from :—

- (1) Respiratory Diseases occurred mostly in June, *July*, August and November.
- (2) Intestinal Diseases in March, April, July and *September*.
- (3) Insect-borne Diseases in February, May, September and December.
- (4) Infectious and Contagious Diseases in February.

Approximate population of Township, 13,000.

	Males.	Females.	Total.
African Native births notified ... ..	61	62	123
„ „ deaths under 1 year ... ..	24	23	47
Classified as follows—			
Respiratory Diseases ... ..	—	—	14
Intestinal Diseases ... ..	—	—	8
Insect-borne Diseases ... ..	—	—	18
General Diseases ... ..	—	—	7
Infantile mortality figure for Township and K.A.R. ... ..	—	—	343
Infantile mortality figure for Township only ... ..	—	—	382
Infantile mortality figure for K.A.R. only	—	—	254·5

Notification of births and deaths in the Township is compulsory, and therefore the statistics may be taken as fairly reliable. It is probable, however, that the classification of diseases is not accurate, as in the cases of persons dying in their houses one has to rely on local information.

The infantile mortality figure for the Township is 382, compared with 145 of 1926, and this seems to be due mainly to the fact that the births are 91 less than 1926, whereas the deaths reported remain fairly stationary.

It is to be regretted that figures for “ deaths under one month ” are not given, but this practice apparently ceased in May, and even then the figures were very unreliable. It is hoped to commence again next year (1928) on definite lines.

It is the practice of the Health Visitor to visit homes as soon as births are notified, and in this way many diseases and conditions which are preventable are dealt with or not permitted to occur.

Details of K.A.R. infantile mortality (included in Township statistics) :—

	Males.	Females.	Total.
Native births notified ... ..	31	24	55
African Native deaths under 1 year ... ..	5	9	14
Classified as follows—			
Respiratory Diseases ... ..	—	—	4
Intestinal Diseases ... ..	—	—	1
Insect-borne Diseases ... ..	—	—	4
General Diseases ... ..	—	—	5

The infantile mortality figure (254·5) for the K.A.R. is less than that of 1926, which was 279, and this is most probably due to the practice of immediate notification of birth from the Company concerned to the Clinic, whereupon the Sister visits the mother and infant. It is also incumbent upon the father to send his sick children for treatment in compliance with battalion orders.

## VITAL STATISTICS—OUT-STATIONS, TABORA DISTRICT.

Population unknown.

	Males.	Females.	Total.
African births notified ... ..	299	304	603
African deaths under 1 year ... ..	63	44	107
Classified as follows—			
Respiratory Diseases ... ..	—	—	16
Intestinal Diseases ... ..	—	—	40
Insect-borne Diseases ... ..	—	—	25
Infectious and Contagious Diseases ...	—	—	5
Helminthic ... ..	—	—	1
General Diseases ... ..	—	—	20
Infantile mortality figure ... ..	—	—	177·4

The figures are collected from the reports of 14 African District Sanitary Inspectors, but cannot be regarded in any way as accurate.

	Males.	Females.	Total.	Percent- age of total deaths.
Total African deaths notified ... ..	419	382	801	—
Classified as follows—				
Respiratory Diseases ... ..	—	—	171	21·4
Intestinal Diseases ... ..	—	—	187	23·3
Insect-borne Diseases... ..	—	—	176	22·0
Infectious and Contagious Diseases...	—	—	45	5·6
Helminthic ... ..	—	—	127	15·9
Epidemic Diseases ... ..	—	—	5	0·6
General Diseases ... ..	—	—	90	11·2

The number stated cannot be taken as accurate, but gives a fair idea of the percentages of the various diseases.

Population : 374,595.

	Shinyanga.	Kahama.	Nzega.	Total.
European deaths notified ... ..	2	1	—	3
Classified as follows—				
Ankylostomiasis ... ..	—	1	—	1
Blackwater Fever ... ..	1	—	—	1
Heart Failure ... ..	1	—	—	1
African Native births notified ... ..	903	439	429	1,771
African Native deaths under 1 year ...	143	131	83	357
Classified as follows—				
Respiratory Diseases ... ..	17	2	20	39
Intestinal Diseases ... ..	51	4	23	78
Insect-borne Diseases... ..	21	1	15	37
Helminthic Diseases ... ..	10	—	2	12
General Diseases ... ..	20	1	18	39
Unknown ... ..	24	123	5	152



Total African Native deaths	...	...	670	331	315	1,316
Classified as follows—						
Respiratory Diseases	...	...	100	17	69	186
Intestinal Diseases	...	...	205	17	75	297
Insect-borne Diseases...	...	...	98	4	42	144
Infectious and Contagious Diseases	...	...	26	1	36	63
Helminthic Diseases	...	...	106	13	31	150
General Diseases	...	...	92	153	26	271
Unknown	...	...	43	126	36	205

The number of deaths from unknown causes is deplorably high, and all occurred early in the year.

#### HYGIENE AND SANITATION.

##### A.—General Review of the Work done and Progress made.

##### Preventive Measures—Tabora Province.

##### Mosquito and Insect-borne Diseases.

*Malaria, etc.*—Summary of Anti-Mosquito work carried out at Tabora Township.

Premises inspected	...	...	...	...	25,801
Collections of mosquito larvæ found	...	...	...	...	631
Anopheline (40 per cent. of total collections)	...	...	...	...	255
Culex...	...	...	...	...	297
Stegomyia	...	...	...	...	131
In pools and open spaces	...	...	...	...	211
In houses and compounds	...	...	...	...	186
In wells, earth, drains, etc., outside compounds	...	...	...	...	266
Percentage of houses and compounds inspected	...	...	...	...	0.82 per cent.
found to be breeding larvæ	...	...	...	...	129
Notices served for mosquito nuisances	...	...	...	...	1,750
Drains inspected	...	...	...	...	22,005
Cesspits and soakagepits inspected	...	...	...	...	410
Pools inspected	...	...	...	...	248
Pools inspected and oiled	...	...	...	...	1,360
Areas inspected by mosquito finders	...	...	...	...	2,198
Wells inspected	...	...	...	...	51,304
Tanks and barrels inspected	...	...	...	...	236
Yards of drains cleared	...	...	...	...	53
Holes and excavations filled	...	...	...	...	114
Gallons of kerosine used	...	...	...	...	

The number of collections of Mosquito larvæ found rose steadily at the beginning of the year until April, when the apex was reached, after which the number gradually fell, and although the findings compare very favourably with those of 1926, they are in no way comparable to those of 1924, with its rainfall of 21 inches.

*Swamps.*—One is compelled to add, at the risk of repeating a worn-out statement, that the town is at the mercy of the rainfall until stone-built channels can be built to carry the water away instead of the present earth drains, which in heavy rainstorms are liable to widen in all directions, and in the resulting excavations grass grows quickly, thus forming a nidus for mosquitoes.

In the Chem-Chem swamp it has been found necessary to divert all the town refuse to this area in an endeavour to raise the ground level. As depressions are filled in, so they will be top-dressed with sand in order to prevent nuisances from flies.

*Pools.*—Although no native digs to procure building clay without a permit, it has been found that the Native Authorities in the vicinity of the Township Boundaries have been excavating for road material, thus providing breeding grounds for mosquitoes which, when adult, fly into the town. An endeavour has been made through the District Officer to have these dealt with. Government departments have been found guilty of digging holes without permission, but have been compelled to re-fill them.

*Drains.*—The provision of built channels in lieu of earth channels are of the greatest necessity, although road repairs should take place at the same time in order to establish their efficacy from the start.

*Wells.*—There are a large number of shallow wells in the native quarter, few of which have close-fitting lids, or in some cases any at all.

*General.*—In December the Sanitation Officer and Sanitary Superintendent, at the request of the Commanding Officer, made a thorough inspection of the Officers' quarters at the King's African Rifles Cantonment, with a view to mosquito prophylaxis, and many suggestions were made in a report and acted upon, although in some cases the assistance of the Public Works Department was required to replace unsuitable traps. It was suggested to the Commanding Officer that the drainage of the Cantonment be reconstructed on more modern lines.

#### SUMMARY OF ANTI-MOSQUITO WORK CARRIED OUT AT 14 OUT-STATIONS OF TABORA DISTRICT.

Premises inspected	...	...	...	...	63,589
Collections of larvæ found	...	...	...	...	5,319
Anopheline	...	...	...	...	1,439
Culex...	...	...	...	...	2,136
Stegomyia	...	...	...	...	1,744
In pools and open spaces	...	...	...	...	1,242
In wells, drains, etc., outside compounds	...	...	...	...	1,211
In houses and compounds	...	...	...	...	2,826
Percentage of houses and compounds inspected	...	...	...	...	
found to be breeding larvæ	...	...	...	...	4·6
Drains inspected	...	...	...	...	1,433
Pools inspected	...	...	...	...	2,469
Areas inspected by mosquito finders	...	...	...	...	427
Wells inspected	...	...	...	...	4,663
Tanks and barrels inspected	...	...	...	...	110,890
Yards of drains cleared	...	...	...	...	39
Yards of new drains dug	...	...	...	...	177
Cess and soakagepits inspected	...	...	...	...	6,307
Holes and excavations filled in	...	...	...	...	932

The above work was carried out by 14 African District Sanitary Inspectors. There are still a large number of collections of larvæ found in houses, and the percentage is higher than 1926 (3·6 per cent.), but it has been reported that the non-natives outside the Tabora Boundary refuse to abide by common laws of cleanliness, and until sanitary rules for small trading centres, not gazetted as townships, come into force the numbers will remain unnecessarily large.

## PREVENTIVE MEASURES—TABORA PROVINCE.

*Mosquito and Insect-borne Diseases.*

*Malaria* (continued).—Summary of Anti-Mosquito work carried out at 13 out-stations of Shinyanga, Kahama and Nzega districts.

	Shinyanga.	Kahama.	Nzega.	Total.
Premises inspected ... ..	13,325	11,184	18,579	43,088
Collections of larvæ found ... ..	618	478	12,073	13,169
Anopheline ... ..	251	193	7,923	8,367
Culex ... ..	313	213	2,923	3,449
Stegomyia ... ..	54	72	1,227	1,353
Drains inspected ... ..	2,586	1,378	1,309	5,273
Cess and soakage pits inspected	3,764	3,951	8,148	15,863
Pools inspected ... ..	1,667	217	1,794	3,678
Wells inspected ... ..	697	406	1,411	2,514
Areas inspected by mosquito finders ... ..	270	58	76	404
Tanks and barrels inspected...	17,531	23,630	26,780	67,941
Yards of drain cleared ... ..	—	1,007	—	1,007
Yards of drain dug ... ..	32	291	112	435
Holes and excavations filled ...	330	578	249	1,157

The above work was carried out by 11 African District Sanitary Inspectors.

## TICK FEVER AND ANTI-SPIRILLUM WORK—TABORA TOWNSHIP.

47 cases of Relapsing Fever were treated at the Tabora Hospital during the year, a reduction of 1 compared with 1926.

Four cases were sent from the Maternity and Child Welfare Clinic to the Hospital for treatment.

Two collections of Ticks were found during the period October to December in an Indian shop, and 5 cases of the Fever came from that house.

As the house is in the middle of a line one could do little except cement up the cracks, and if further cases occurred to close the house. The cementing was done, and the house appears to be free of ticks.

One death (native) was reported during the year from Relapsing Fever.

## PREVENTIVE MEASURES—TABORA PROVINCE.

*Smallpox*.—Cases notified in Tabora Province, 1927 :—

Tabora Township ... ..	Nil.
Tabora District, Urambo Sultanate ... ..	1
Shinyanga District, Usule ... ..	1
Nzega District ... ..	Nil.
Kahama District... ..	Nil.
Deaths ... ..	Nil.

Both the cases mentioned were doubtful, but precautionary measures were taken.



## Vaccinations performed in Tabora Province in 1927 :—

Tabora Township	...	...	...	...	...	...	...	14,133
Tabora District	...	...	...	...	...	...	...	6,502
Shinyanga District	...	...	...	...	...	...	...	9,334
Nzega District	...	...	...	...	...	...	...	6,445
Kahama District...	...	...	...	...	...	...	...	4,566
Total	...	...	...	...	...	...	...	40,980

## Vaccinations performed at Health Office and Railway Station :—

Native Travellers	...	...	...	...	...	...	...	13,220
Travelling permits issued at Health Office	...	...	...	...	...	...	...	1,467
All labour recruits examined at Tabora were vaccinated	...	...	...	...	...	...	...	3,403
Number of vaccinations reinspected	...	...	...	...	...	...	...	22,913
Number of vaccinations reinspected and found successful	...	...	...	...	...	...	...	13,578

*Chickenpox*.—Cases notified in Tabora Province, 1927 :—

Tabora Township (mainly in Government School)	...	...	...	...	...	...	22
Tabora District (at Ului)	...	...	...	...	...	(2 deaths)	4
Shinyanga, Kahama and Nzega (exact figures unknown)	...	...	...	...	...	(approx.)	30

It is difficult to give the exact figures, as in January and February a number of cases given as “ unknown ” were notified from these districts.

An outbreak occurred toward the end of the year at Kizigo, and is still continuing (although abating). Each small village was isolated to the others, and the whole school isolated from the rest of the country.

## HELMINTHIC DISEASES.

*Ankylostomiasis*.—22 cases were treated at Tabora Hospital during the year, and a total of 13 deaths were notified by the Senior Medical Officer and Liwali in the Township. Eight cases were treated in the Child Welfare Clinic.

Seven stools were examined and three were found positive.

The following deaths were notified from *Ankylostomiasis* by the African District Sanitary Inspectors :—

(1) Tabora out-districts	...	...	...	...	...	126
(2) Shinyanga district	...	...	...	...	...	—
(3) Kahama district	...	...	...	...	...	13 (1 European)
(4) Nzega district	...	...	...	...	...	31

The figures of the Districts other than Tabora should be regarded with the greatest suspicion.

It is probable that Hookworm is considerably more prevalent than the figures show, even in the Township.

A case of interest worth reporting (although in 1928) is that one of the ayahs in the Clinic whose stool showed *strongyloides* larvæ strongly positive. Shortly after administration of Carbon Tetrachloride she passed 10 feet of *Tænia saginta*, after that *strongyloid* larvæ.

*Schistosomiasis*.—40 cases were treated at the Hospital and 4 cases at the Clinic, a large increase from the 1926 figure of 7.

No *Bullinus* molluscs were found during the year.

No deaths were reported from Tabora district during the year.

## SUMMARY OF WORK CARRIED OUT IN TABORA TOWN.

Sanitary inspection of premises	...	...	...	...	...	25,801
Collections of fly maggots found and destroyed	...	...	...	...	...	536
Number of pit latrines dug	...	...	...	...	...	1,773
Cartloads of refuse collected	...	...	...	...	...	9,372
Rats caught	...	...	...	...	...	531
Burial permits issued	...	...	...	...	...	316
Burial performed by P.H.D.	...	...	...	...	...	40
Gallons of disinfectant used	...	...	...	...	...	123
Notices served for nuisances other than mosquitoes and fly maggots	...	...	...	...	...	147
Prosecutions and convictions	...	...	...	...	...	1

More latrine accommodation is urgently required, especially at the market, which is expanding daily ; estimates for this were put in the 1928-29 Estimates. Also there are pan latrines for natives practically in all Government European quarters and offices, the Native Hospital, Gaol and Police lines. It is difficult to keep these in decent sanitary condition, but every endeavour is made until a more modern system comes into use. At the end of the year seven Government European quarters have been provided with water-flush closets connected to septic tanks and soakagepits in the compound of the houses concerned.

It is to be regretted that no co-operation was asked for from the local Sanitation Department.

There are one or two improvements that could have been made had this co-operation been asked for—*e.g.*, the intercepting trap at the entrance to the septic tank instead of at the inspection chamber. It is hoped that a stock of Y-branch access pipes be laid in, in order that the present formed channel may be done away with. On the whole, the introduction of the system is a vast improvement on the old pan system, and the men have been diverted to other and more pressing work.

The excreta from pan latrines—with the exception of the Hospital, Askari lines and market—is trenched in an area just outside the Township boundary, and this method has proved extremely satisfactory. In the places mentioned by name the excreta is burnt in the nearest incinerator.

Incinerators exist at the Boma, Native Hospital, Gaol, Askari and Katikiro lines in the European area.

Two additional incinerators were included in the 1928-29 Estimates as being necessary, together with improvements to native latrines.

The choo-pit is the type generally used in Asiatic and Native dwellings. Although they provide breeding places for flies, they are free from any objectionable smell (unless full), and cost next to nothing.

## SUMMARY OF WORK CARRIED OUT AT THE OUT-STATIONS IN THE TABORA PROVINCE.

	Tabora.	Shinyanga.	Kahama.	Nzega.
Sanitary inspection of premises...	63,589	13,325	11,184	18,579
Collections of fly maggots found	1,128	913	82	2,782
Number of pit latrines dug	6,809	1,465	745	3,749
Dumps of refuse removed	13,546	3,660	1,977	8,864
Burial permits (verbal) issued...	812	672	191	319
Number of rats caught	1,139	2,572	826	1,022

The above work was carried out by 26 African District Sanitary Inspectors.

During the year the work of the African Sanitary Inspectors was supervised by a European Sanitary Superintendent travelling round.

Under the Native Authority Ordinance, the Inspectors' work is less uphill than in previous years, but there is still a considerable amount of trouble occurring owing to the overbearing habits of certain of the more educated inspectors, and this does not lead to harmonious work.

The general cleanliness of villages shows improvement, but it is very slow and in many cases the dirt is due to non-natives. Until these people can be brought within the law, good sanitation in the larger villages will remain a difficult task.

Many cases are reported of natives digging good pit latrines for the benefit of the Sanitary Inspector without ever using them, although in the majority of cases pit latrine accommodation is taken advantage of.

#### TABORA TOWN.

*Water Supply.*—Service pipes and taps are laid on in all the European houses, but the supply leaves much to be desired ; this is receiving the attention of the Public Works Department.

At present there is only one stand pipe for the native area situated at the market which is greatly patronised. Otherwise they obtain their water from private wells or carry it from Kitete.

*Cemeteries.*—The following cemeteries are at present authorised for burials :—

European	...	...	...	...	...	...	...	1	
Indian, etc.	...	...	...	...	...	...	...	2	
Hindu	...	...	...	...	...	...	...	2	(1 railway).
Native and Hindu	...	...	...	...	...	...	...	3	
Mission	...	...	...	...	...	...	...	2	

The above cemeteries, with the exception of the Asiatic and Mission ones, were maintained by the Department throughout the year.

*Drainage.*—Reference has already been made to the question of swamps and the provision of stone built channels. These have been estimated for in 1928-29.

236 yards of new earth drains were dug by this department, mainly for the purpose of coping with floods.

In the railway area masonry drains were constructed, but no new ones were constructed in the town.

#### TABORA PROVINCE OUT-STATIONS.

177 yards of drains were dug under the supervision of African District Sanitary Inspectors.

#### RAILWAY SANITATION.

A European Sanitary Inspector was in charge of the line in the Tabora Province.

Improvements to drainage at the railway residential area were carried out during the year. All the houses were connected up to one sewage scheme and plans were passed by the Township Authority for a further scheme for European houses on the Tabora side of the line.

#### LABOUR RECRUITMENT.

A large percentage of the native labour employed throughout the Territory and Zanzibar is recruited from the Wanyamwezi.



All recruits are examined by the Senior Medical Officer before distribution and are vaccinated before leaving.

3,403 recruits were passed fit during the year.

#### MEDICAL CARE OF NATIVE LABOUR.

The largest employer of native labour in the Province is the Railway Contractor and a Sub-Assistant Surgeon is attached to the camp.

This camp is now situated in Mwanza Province.

#### SCHOOL HYGIENE, TABORA.

1. *Medical Inspection of Pupils*.—A detailed inspection of all pupils was carried out at the opening of each session and entered in the card index.

A high standard of cleanliness is maintained and the general health is satisfactory in spite of many enlarged spleens and chronic tonsils. The urine was examined in each case and found to be normal except for two cases of bilharzia.

The following conditions were worth noting :—

Chronic Tonsillitis ...	...	...	...	...	...	63
Enlarged Spleen ...	...	...	...	...	...	31
Ringworm of the Head ...	...	...	...	...	...	15
Umbilical Hernia ...	...	...	...	...	...	4
V.D.H. ...	...	...	...	...	...	4
Squint ...	...	...	...	...	...	4
Bilharzia ...	...	...	...	...	...	2
Elephantiasis of Leg ...	...	...	...	...	...	1
Anæmia ...	...	...	...	...	...	1

Wherever possible treatment was carried out.

2. *School Dispensary*.—This was attended daily by the Sub-Assistant Surgeon attached to the Health Office.

An average of 87 attended daily in the class-rooms out of 96 on the register.

An outbreak of measles occurred in August and the school was isolated.

The following cases were treated during the session :—

Ulcers and Injuries...	...	...	...	...	...	146
Coryza and Bronchitis ...	...	...	...	...	...	53
Pyrexia of Uncertain Origin ...	...	...	...	...	...	23
Malaria Subtertian ...	...	...	...	...	...	16
Syphilis ...	...	...	...	...	...	2
Gonorrhœa ...	...	...	...	...	...	4
Bilharzia ...	...	...	...	...	...	3
Pneumonia ...	...	...	...	(treated hospital)	...	3
Conjunctivitis ...	...	...	...	...	...	17

There are other minor conditions, such as earache, constipation, etc. Minor injuries and abrasions are common in connection with football.

The highest incidence of malaria was in May.

## KIZIGO AGRICULTURAL SCHOOL.

A regular medical inspection of this school was carried out twice weekly and minor ailments of the pupils treated there.

More serious cases (happily very few) were sent to Tabora for treatment in the hospital.

The majority of the pupils have either impetigo or ringworm of the head, and although vigorous treatment was carried out in June and July, most of them were found to be reinfected on their return in August.

It is noteworthy that the teachers remained free of infection and Tabora School was but little infected. In February, 26 pupils complained of symptoms of bilharzia, but only 12 showed even a trace of blood and of these only 4 were found positive.

In March, 5 were examined with 3 positive.

These were treated at the hospital.

In November, the drinking water supply became a problem and a rather dirty looking well had to be resorted to until the rains broke.

An epidemic of chickenpox broke out in December, together with a few cases of measles. This was strictly dealt with by quarantine methods, each section being isolated from the next one and the whole school isolated altogether. The *dietary* is identical with that of the Government School.

HOUSING AND TOWN PLANNING, TABORA—SUMMARY OF TOWNSHIP AUTHORITY  
WORK IN TABORA, 1927.

The Tabora Township Authority and the Building and Town Planning Committee are constituted as follows :—

*President* : The District Officer.

*Members* : The Sanitation Officer (Executive Officer).  
The Executive Engineer, P.W.D.  
The Staff Surveyor and  
Two non-official Members.

Nine meetings were held during the year.

The following is a summary of work done in connection with the Township Authority and Building and Town Planning Committee.

The following permits were issued during the year :—

To build new native huts ...	...	...	...	...	160
To erect new buildings ...	...	...	...	...	9
To repair buildings ...	...	...	...	...	21
To erect outbuildings ...	...	...	...	...	70
To dig pit latrines ...	...	...	...	...	1,030
Total licences and permits issued other than above for sale of foodstuffs ...	...	...	...	...	428
Number of uninhabitable native huts demolished ...	...	...	...	...	75

The new Township Boundary encloses an area of 4.11 square miles. This is in no way the same figure given for the new Township area in the Annual Report for 1926 (18 square miles), but the Staff Surveyor states that the 1926 figure is definitely wrong.

The houses within the boundary are being numbered and this is nearing completion.

The surveying of the Chem Chem area for building purposes is continuing, and there is a certain amount of building activity going on, although private land owners were at first slow in allowing building to proceed.

Repairs were carried out to all Government European quarters. 100 gallons storage tanks were installed in 7 houses.

Minor repairs to the existing meat market were carried out.

Within the Township there are 1,524 native houses (about 30 in course of construction) and 205 European types of houses. (These figures may be taken as almost correct.)

Should a native desire to build a hut he must first procure a "Temporary Occupation Permit," and after the Surveyor has marked out the site, a building permit is issued. There has been some little trouble owing to natives moving the sites after they have been put in or else not building in conformity with them. These persons were suitably dealt with.

Sites in the Chem Chem area are being laid out and building has commenced.

#### RECREATION FACILITIES.

*European.*—Two golf courses, six tennis courts (one incomplete), one squash-racket court, cricket and football pitches.

*Asiatic.*—There is a sports ground for Goans and one for Indians in the railway area.

*Native.*—The King's African Rifles, Police and School possess sports grounds, and the open spaces are well patronised by the general population.

#### FOOD IN RELATION TO HEALTH AND DISEASE.

All meat is slaughtered at the Public Abattoir at Mbugani where good facilities are available.

The water supply, however, during the past year was a source of some anxiety owing to the length of the dry season. The meat is sold by men in white coats and the meat exposed for sale is covered with white cloths. During the mango season myriads of flies of all genera (*Musca*, *Lucilia* and *Calliphora*, etc.) buzz round the meat market and until the market can be successfully fly-proofed this state of things will continue.

#### PREMISES FOR THE SALE OF FOODSTUFFS.

All such premises have to be passed as suitable before permission is granted. Regular inspections of these shops are carried out and several collections of "blown tins" were found and dealt with.

#### SALE OF MILK.

The milk supply of the town is most unsatisfactory owing to the lack of a proper collecting centre. The supply is managed by members of the Watusi tribe and continual complaints are received about watered milk and dirty milk. The practice of washing the bottles with urine obtains here and is extremely difficult to stop, being apparently an age-old custom.

Samples are examined from time to time, and all persons requiring a permit must bring a sample with them and are duly warned that condign punishment will overtake them should they contravene the regulations.



## MEASURES TAKEN TO SPREAD THE KNOWLEDGE OF HYGIENE AND SANITATION.

The departmental energies have been mainly concentrated on consolidating the knowledge of the African District Sanitary Inspector, and the European Sanitary Superintendent of the district has given advice to the headman of each village visited. The writer took advantage of permission given by the Provincial Commissioner to address a baraza (council) of the Sultans of Tabora district on the value of hygiene as a prophylaxis against disease. A large number of the general public (native) were present also.

## TRAINING OF SANITARY PERSONNEL.

The Urban Sanitary Inspectors and Mosquito Finders receive instruction from time to time and the African District Sanitary Inspectors who come in every month have their mistakes pointed out to them.

## SUMMARY OF THE METEOROLOGICAL REPORT FOR 1927.

Total rainfall for the year	...	...	...	33·05
Number of days on which rain fell	...	...	...	105
Highest rainfall on any one day	...	...	...	2·3 inches in February.
Mean maximum shade temperature for the year	...	...	...	91·5
Mean minimum shade temperature for the year	...	...	...	58·5
Mean shade temperature for the year	...	...	...	75

## SUMMARY OF REPORT ON THE HEALTH OF MWANZA DURING 1927.

By DR. VAN R. MOSTERT, B.A. (TRANSVAAL), M.B., CH.B. (EDIN.), SANITATION  
OFFICER, MWANZA.

Taking the general health of the town during the past year I am of opinion that Mwanza is not deserving of its reputation as an extremely unhealthy town. Agreed that during the hot rainy months the atmosphere has a depressant effect on the people, but Malaria is no more common here than for example in Tabora; Blackwater Fever appears to be less common than in Tabora, and actual Dysentery is rarely seen. Slight abdominal trouble is very prevalent, the true nature of which has not yet been defined, but one would expect trouble of this kind when taking into account the fact that the water supply is got from a very closed-in portion of the Lake, Mwanza Bay, and, moreover, from a part of the bay which is liable to be fouled by shipping, etc. Most Europeans boil their drinking water. The manufacturers of aerated waters, on the other hand, have not been boiling the water used until quite recently, when the Health Office took determined steps to see that this was done daily—soda water might have been at the back of a lot of the abdominal trouble in the past.

Milk is now under strict supervision.

There is extreme congestion in the Asiatic area (which is a large one). The soakage-pits and washing slabs ordered by the Health Office have done much towards having clean, dry backyards, but overbuilding and overcrowding and the latrines still remain an intricate problem.

With a proper water supply (such as the scheme proposed by the P.W.D.), proper supervision of milk, and better housing in the Asiatic area, there should be a great improvement in the health of Mwanza.

The hilly, rocky nature of the town has been a source of trouble to the Health Office during the past year, the crevices in the rocks providing excellent breeding ground for mosquitoes. Many European houses unfortunately have rocks in the near neighbourhood.

The year 1927 again saw Mwanza without any cases of Plague, Smallpox or Cerebro Spinal Fever.

## MOSQUITO OR INSECT-BORNE DISEASES.

*Malaria*.—Prevalent throughout the year with greatest incidence after the big rains in the months of March, April, May and June, and to a less extent about November and December, during the intervals between the early rains. The dry season round about August and September showed few cases.

Subtertian Malaria is the usual form of the disease, but Benign Tertian also occurs. I might mention a small epidemic of the latter disease in September, when I found benign parasites in the blood of one Indian woman and three Europeans. The woman was the wife of the hotel proprietor, and I believe the Europeans picked up the disease at the hotel.

Two interesting cases presented themselves at the hospital, both being native babies with chronic fever and enlarged spleens. Their respective bloods showed crescents and practically all the stages of the subtertian parasite, one even showing a schizont. Both cases died. I believe these babies to be a potent source of the disease.

The *Culex* is the more prevalent mosquito in the town, the *Anopheles* in the marshy areas along the lake shore (especially at Kirumba and Usagara Bay) and at Kartoos. In Tabora I saw many more *Anopheles* of an evening in the houses than here in Mwanza. I have noted that the *Anopheles* frequently bite in the early morning, coming from underneath the bed.

Blackwater Fever is not uncommon in the town.

*Relapsing Fever*.—*Spirillum* ticks are numerous throughout the town, and both natives and Asiatics suffer. There does not appear to be a marked immunity towards the disease amongst the local natives. Cases are frequent amongst the askaris of the K.A.R.

## INFECTIOUS OR EPIDEMIC DISEASES.

*Plague, Smallpox or Cerebro Spinal Fever*.—No cases.

*Chickenpox*.—Three cases occurred in the jail during the year.

*Tetanus*.—There have been two cases during the year. The one remained over from last year and came from Kirumba (a part of Mwanza township), the other was admitted during the year and came from the outskirts of the town.

*Mycosis*.—Ringworm of the groin and the axilla is quite common.

*Tuberculosis*.—There have been a number of cases in the town and jail during the year. I had the opportunity of examining two advanced cases—one the wife of an European official, the other a native from the jail. Both showed vast number of bacilli in every field microscopically. Judging from the progress made by the disease in these two cases, Mwanza's lake atmosphere appears to be unsuitable for people suffering from the disease. This, however, is merely my own observation from a very limited number of cases. Five people died of the disease during the year.

*Anthrax*.—Two Indian hide dealers suffered from the disease. They both had malignant pustules on the forearm as the result of handling Ukerewe hides. Both recovered under treatment. The third case was a Health Office boy who got a malignant pustule on the head. He ran away from hospital before he could be treated and was brought back when the disease had progressed too far to benefit by treatment.



## HYGIENE AND SANITATION.

## GENERAL REVIEW OF THE WORK DONE AND PROGRESS MADE.

## PREVENTIVE MEASURES.

*Mosquito and Insect-borne Disease.*

*Anti-Malarial Measures.*—This important branch of sanitation received all possible attention during the year. Lack of staff prevented an extensive anti-malarial campaign. All that could be done was to prevent breeding of mosquitoes as far as was possible with staff available by concentrating on the worst breeding places of Anopheline mosquitoes, *i.e.*, the lake shores and several swampy places surrounding the Township.

Six Mosquito Finders were employed on the work of finding and oiling, while the work of filling-in was done by the General Duty Gang whenever they could be spared from other work. In the new financial year, when an increase of staff will be forthcoming, certain of the swampy areas may be tackled with a view to drainage.

Considerable trouble was met with in the number of privately owned gardens surrounding the Township. Four owners had notices served on them, and in each case an inspection of the garden was made and breeding places pointed out to the owners. Steps were taken to have the ground levelled and pools filled in where practicable. Inspections are so arranged that the same place is inspected every fourth day.

A list of the popular and peculiar breeding places has been drawn up. It is proposed to circulate this among the community in general with a view to drawing their attention to the perspicacity of the mosquito in detecting the smallest accumulation of water wherever it may be, and also to demonstrate the peculiar breeding places which have been found.

## EPIDEMIC DISEASES.

*Plague.*—The following preventive measures were adopted, *viz.* :—

1. Trapping and poisoning of rats.
2. All dhows were inspected by a dhow inspector and all vessels arriving in Port passed by the M.O.H.
3. During the year special measures were adopted towards dhows from the Musoma and Shirati area as plague had occurred at Shirati. Orders were given that all such dhows were to anchor 100 yards from the shore and to be investigated first by the Health Officer before landing any passengers and cargo.
4. Steps were taken to render godowns as rat-proof as possible. It might, however, be stated that the godown question is very unsatisfactory in the town. The number is quite inadequate, and as the public are unable to get suitable plots for new godowns, rat breeding material is stored on verandahs and other very unsuitable places. It is, however, hoped that a suitable godown area will shortly be demarcated along the new railway line. Rigorous steps could then be taken to see that buildings are in accordance with the special regulations concerning rats.

*Smallpox.*—District Native Sanitary Inspectors were posted to do vaccination work in the districts. 2,720 people were vaccinated during the year. A more vigorous campaign in this direction will be carried out in 1928. On both occasions when smallpox was falsely reported during the year the opportunity was taken of vaccinating everybody possible in the neighbourhood.

*Enteric, Dysentery, Cholera.*—Nil.



The water supply is as yet very primitive and steps were taken during the year to persuade people to boil all water and milk.

Latrines were improved.

#### HELMINTHIC DISEASES.

Meat was examined by the Veterinary Department before being placed on the market, and there reinspected by the Health Department. On only two occasions was *Cysticercus bovis* found and on both occasions in the heart muscle.

No special preventive steps were taken in Mwanza with regard to ankylostomiasis or bilharzia. There is very little bathing in the lake.

#### GENERAL MEASURES OF SANITATION.

*Sewage Disposal.*—A satisfactory conservancy system was maintained throughout the year, but much inconvenience was met with in dealing with the exceptionally bad type of Indian latrine, which, unfortunately, is still met with in considerable number in Mwanza.

An average of 18 latrine sweepers per month were engaged on conservancy work, the greater part of the work being done in the early hours of the morning with a minimum of inconvenience to the community.

As the existing type of Asiatic latrine has a separate system, the urine is removed from inside the latrine by boys who are specially engaged by the Indians for this work. The practice among those boys was to remove the urine at an early hour (as early as 3 a.m.), and dump it in the most convenient sanitary lane or some vacant plot. This practice was stopped and special dumping sumps (mosquito proof) were made at different points throughout the Township (in the proximity of incinerators and at native public latrine sites). These were made by digging a deep pit and filling with perforated tins. A "collecting day" was arranged, when all boys made a systematic search in all empty plots, sanitary lanes, etc., and the collection was a large one, including all kind of tins and receptacles that had been dumped from time to time (potential breeding places for mosquitoes), but providing what has proved to be a splendid medium for the soak sumps and incidentally ridding the Township of a nuisance.

These sumps have proved very efficient and have not given rise to any nuisance. A kerosene tin perforated at the bottom and placed half of its depth into the top layer of earth, completes the pit and provides the necessary opening for pouring the liquids—a lid is provided to prevent attraction of flies.

Three new Native Public Latrines were constructed by the Public Works Department during the year and provided a much-felt want.

In the European and Asiatic areas, however, much remains to be done, and the water-carriage system cannot come too soon.

*Refuse Disposal.*—Two ox-drawn carts are available to deal with the entire Township. This number is inadequate to deal with the refuse of Mwanza, the Asiatic area being extensive and highly populated. An average of 13 loads of refuse is accounted for daily and divided equally between the three incinerators. This number is supplemented by two hand carts which are also engaged on removal of refuse.

It is hoped that in the new financial year, 1928–29, sufficient money may be available to allow of the construction of a new incinerator and also to provide a large open shelter with concrete floor (where ox-carts can pass through and deposit the loads of refuse), thus providing a constant supply of dry material in the rainy season. Considerably less chance of fly breeding would exist with this form of dealing with refuse.

*Drainage.*—Existing drains were kept clear of grass during the year as far as the supply of labour would permit, and an attempt was made to build a straight “run” in a very bad part of the main stream which passes close to the Health Office. This attempt, though not entirely successful (through lack of implements and money), was a great improvement on the former condition and mosquito breeding was prevented.

Attempts were made by private owners to irrigate their gardens (especially one case on the east side of the Township). Unwittingly, ideal mosquito-breeding places were made and countless numbers of Anopheline mosquitoes were found. Steps were taken to have this nuisance abated. All furrows were levelled down and only a straight main drain allowed.

An attempt was made to give the necessary slope to the sides of the main drains and to cut out sharp bends to increase the flow. A special drain gang is required to cope with this branch of sanitation.

*Water Supply.*—This remains as in previous years, with the exception that better supervision was kept on natives who were in the habit of using the lake edge as a convenient latrine and thus endangering the water supply. Eight prosecutions for this nuisance were made during the year, and as the result of a conviction in each no further cases were seen during the latter part of the year.

The water in the new water scheme will be obtained by inducing water to filter through to a well which will be dug at a suitable point on the lake front. The water will then be pumped to a reservoir and thence gravitated to the several points of service to meet the needs of the community.

*Clearance of Bush and Undergrowth.*—This was attended to as far as the labour available would permit. Several pools in the Kartoos area—north-east of the town and known to be permanent breeding places for the Anopheline mosquito—were kept clear of grass and water growths to hinder the breeding of mosquitoes and to facilitate oiling. In the Cemetery Road area (on lake shore) a very bad area was cleared of bush.

*Sanitary Inspections.*—Routine sanitary inspections were carried out throughout the year.

An exhaustive inspection of the congested area was made which resulted in a new layout which has already met with the approval of the Central Town Planning and Building Committee. As has been mentioned elsewhere, it was not considered advisable in many cases to insist on extensive reconstruction schemes having in view the pending new layout. Wherever possible new latrines were made, mostly of the deep pit type, except in the case of Indian area where the new layout would eventually change the position of many of the plots. Now that there is a definite scheme it will be possible to remove many of the insanitary conditions existing, especially in the Asiatic area.

A decided improvement was effected in the method of disposal of waste water. Soakpits and washing slabs were made in 95 per cent. of the Asiatic houses and mosquito breeding was prevented to a much greater extent than when the insanitary cesspool was in vogue. It has not been possible to completely eradicate the cesspool, but this is being tackled in the new year. Considerable difficulty is experienced in getting owners to comply with the notices served, and it is only when ordered by the magistrate to comply with an order that this is done. Towards the end of 1927, however, the principles of sanitation were being understood, and the indifference of many of the house owners is



put down to ignorance which will gradually disappear as the laws of health become a reality to the community in general.

In the year 1928 it is hoped that great improvement will be made in the Asiatic area when the new layout will have been partly realised.

*Food Inspection.*—Inspection of meat and fish (dried) was carried out throughout the year. A great improvement was effected in the Native market. The existing meat safe was a fly trap and steps were taken to cause all butchers to supply a large size meat safe, gauze protected and provided with a self-closing door. The result was better than expected, and very creditable meat safes were supplied (made by a skilled artisan from Nairobi). This gave the market a neat appearance and the fly population was greatly diminished.

In the fruit and vegetable market tables were also supplied by the vendors, and improved conditions greatly. Daily inspection is made and all tables, etc., are inspected before any selling takes place.

Number of lots of unsound	...	...	...	Meat, 5.
Foods seized	...	...	...	Fish, 5 lots (total, 257 fish of "sato" variety).

Four prosecutions were made and four convictions were obtained.

*School Hygiene.*—The children of the Mwanza Central School were all thoroughly examined at the time of the opening of the school. Such minor ailments as were found were treated at the hospital.

The systematic examination of pupils and the filling in of record cards were delayed by the vacation, but this work is now being carried on daily. The chief ailments are bilharzia and scabies. There is a fixed afternoon at the hospital for the treatment of bilharzia.

The pupils are clean and the dental condition excellent.

During the period when the school was under construction I gave advice with regard to sanitation in general.

The condition of the school premises leaves little to be desired. The classrooms are clean, dry and airy, and each pupil has a substantial desk. The huts are good. Each measures 16 feet by 16 feet with thatched roof, windows on four sides and air space all around at the junction of roof and walls. There are eight boys to each hut, giving each a floor space of 32 square feet.

There are in all 11 latrines and 7 urinals for 110 pupils. The latrines are of the Pit type with concrete top and are 12 feet in depth. Each has a cover. The urinals are a modification of the Funnel system and are answering very well.

There is at present one kitchen. A special hut has been set aside as a Dispensary.

The Headmaster and Technical Instructor each has a good substantial stone house. Each house has a latrine of the Pit type 12 feet in depth and 3 feet in diameter with a fly-proof box set in a cement top. Soakagepits and washing slabs have also been constructed.



*Housing and Town Planning.*—Throughout the year this branch of work (Township Authority) accounted for much time and work.

Constitution of the Township Authority :—

The Chairman (District Officer).  
 The Staff Surveyor.  
 The Assistant Engineer i/c Public Works Department.  
 Representative of Chamber of Commerce.  
 Representative of Indian Association.  
 The Executive Officer (M.O.H.).

Business attended to during 1927 :—

Ordinary Meetings	...	...	...	...	...	...	27
Extraordinary Meetings	...	...	...	...	...	...	3
Number of files opened	...	...	...	...	...	...	19
Number of applications	...	...	...	...	...	...	883
Number of applications for construction of privy pits	...	...	...	...	...	...	165
Number of Native houses built	...	...	...	...	...	...	70
Number of other houses built	...	...	...	...	...	...	4
Number of reconstructions—							
European	...	...	...	...	...	...	11
Asiatic	...	...	...	...	...	...	75
Native	...	...	...	...	...	...	250

Accurate plans of the township are available.

As Mwanza is a very congested township the Township Authority has given special attention to the matter of building according to regulations—no more than one house to be built on one plot and strictly prohibiting any scheme for the further sub-division of buildings already constructed. During the year a new layout of the congested area of the town was put forward and it is hoped that this scheme will be put into force in 1928.

Good facilities for recreation exist.

ABSTRACT OF WORK DONE DURING THE YEAR.

Houses inspected	...	...	...	...	...	14,885
Nuisances reported	...	...	...	...	...	696
Notices served	...	...	...	...	...	629
Prosecutions	...	...	...	...	...	64
Convictions	...	...	...	...	...	64
Infectious Diseases (notified)	...	...	...	...	...	4
Anti-Mosquito Work—						
Premises inspected	...	...	...	...	...	53,685
Prosecutions	...	...	...	...	...	27
Convictions	...	...	...	...	...	27
Steamers boarded	...	...	...	...	...	60
Dhows inspected	...	...	...	...	...	1,558
Rats caught	...	...	...	...	...	15,352
Vaccinations	...	...	...	...	...	2,720

## IV.—PORT HEALTH WORK AND ADMINISTRATION.

The quarantine station for the sea ports of the Tanganyika Territory is at Zanzibar and is well organised and equipped. During the greater part of the year there were two fully qualified Sanitation Officers at Dar-es-Salaam and one at Tanga. An additional Acting Sanitation Officer at Dar-es-Salaam and another at Mwanza. Medical Officers function as such at Bukoba, Mwanza, Musoma, Kigoma and Lindi ; Sub-Assistant Surgeons at Kilwa, Pangani, Bagamoyo, Mikindani and Mafia. It is the intention, when qualified staff is available, to post Sanitation Officers at Kigoma, Mwanza and Lindi. There were no circumstances which required quarantine measures of any importance.

The total number of steamers and dhows given pratique during the year at the different ports was as follows :—

Stations.	Steamers.			Dhows.		
	1925.	1926.	1927.	1925.	1926.	1927.
Dar-es-Salaam .. .. .	325	362	480	773	803	1,738
Tanga .. .. .	200	243	283	697	797	864
Lindi .. .. .	48	46	62	158	169	154
Kilwa .. .. .	22	23	33	279	178	145
Pangani .. .. .	26	25	46	312	283	250
Bagamoyo .. .. .	2	1	1	447	466	402
Mikindani .. .. .	17	19	31	163	162	151
Mafia .. .. .	23	23	33	283	224	202
Kigoma .. .. .	153	126	155	24	21	24
Mwanza .. .. .	51	66	71	798	863	90
Bukoba .. .. .	62	63	63	10	2	1
Musoma .. .. .	50	61	62	48	48	87
Mwaya (Lake Nyasa) .. ..	—	—	23	—	—	20
TOTAL .. .. .	979	1,058	1,343	3,992	4,016	4,128

## V.—MATERNITY AND CHILD WELFARE.

Progress still continues at the Dar-es-Salaam, Tanga, Tabora and Machame Clinics. The above are distinct from the Welfare Clinics in connection with the hospitals at Mwanza and Mahenge.

At Shinyanga a great deal of excellent work was done by Dr. Maynard, of the African Inland Mission : this clinic was built and equipped with beds by the Native Authority. In the Kahama district an intensive investigation and campaign aimed directly at the reduction of infantile mortality, and improvement in the health of the population, is in progress. Besides the Kahama Clinic, which functioned throughout the year, a clinic was completed at Runzewe during October, and, although the clinics at Iyogo and Itaranganya were still in the process of completion, work had already been in progress for several months. It is anticipated that the two latter clinics will be opened during January of the forthcoming year. The former two are staffed with European Health Visitors and the latter with Indian Sub-Assistant Surgeons. A reproduction of the Memorandum issued to the Medical Officer in charge of the whole area gives an indication of the scope of our objective, which, of course, will take several years to materialise (see pages 106–109).

It will be observed from the table, which shows the total figures returned from all the Government clinics mentioned above, that a considerable increase has taken place over the previous year's figures. The situation, therefore, might reasonably be regarded as

satisfactory, and offers inducement to extend the system to the larger townships and centres of population in due course.

	1925.	1926.	1927.
Visits paid by Health Visitors—			
To New Births ... ..	20	197	548
For other conditions ... ..	1,998	3,505	6,806
Mothers admitted to Clinics—			
In Ante-natal State ... ..	—	3	57
For Confinement ... ..	—	21	507
For Post-natal State ... ..	—	13	162
Ante-natal examinations ... ..	—	—	1,131
Children admitted to Clinics ... ..	—	36	183
Total number of Confinements, Stillbirths, Pre-mature Births, etc. ... ..	—	—	1,191
Total number of New Births ... ..	—	—	562
Total number of new cases In- and Out-patients seen at Clinics—			
Mothers ... ..	—	2,506	10,736
Children ... ..	4,207	4,224	16,515
Total number of attendances at Clinics—			
Mothers ... ..	—	6,164	27,745
Children ... ..	—	12,924	36,725
Special examinations, Dentals, Slides, etc. ... ..	—	2,114	10,071

The above table was compiled by Dr. Madeleine Harvey Clarke, Medical Officer in charge of the Maternity and Child Welfare Clinic, Dar-es-Salaam.

#### MEMORANDUM OF INSTRUCTIONS TO THE MEDICAL OFFICER IN CHARGE, MATERNITY AND CHILD WELFARE AND HEALTH INVESTIGATION IN THE KAHAMA DISTRICT.

Before proceeding to the detailed programme of the work to be undertaken by you in the Kahama district of the Tabora Province, the following minute by His Excellency The Governor, outlining the principles on which the investigations are to be conducted is drawn to your attention :—

“ Money has been provided on next year's Estimates for an intensive campaign in the Kahama District, in order to obtain reliable information and statistics in regard to the physical progress or otherwise of a typical section of the native population. What we want to ascertain is whether there is any truth in the repeated statement that the natives are diminishing rather than increasing in numbers. It is impossible to institute a system for this purpose applicable to the whole Territory, and we are therefore carving off a portion of the country and applying our tests there, just as if we were dealing with a small dependency instead of a very large one.

“ It is well that we should have our organisation ready, and I should be obliged if the Director of Medical and Sanitary Services would take in hand now the draft of the instructions that he proposes to issue to the officer in charge of the medical and sanitary part of the campaign. We want to know the diseases which occur amongst the natives, and their causes (special attention being devoted to food-deficiency diseases), the death rate and the birth rate ; also the infant mortality rate. These are the main points only ; there are others which will occur to the Director of Medical and Sanitary Services.

“ The Medical Officer in charge and the Administrative Officer must, of course, work in the closest co-operation, and a sympathetic man should relieve Mr. Lake when he goes on leave. He is an excellent man for this kind of work.



“ It will be three, even five, years before the Medical Officer can reach any very valuable conclusions, and in the meantime the Administrative Officer should particularly study the habits of the people as regards work in order that he may be able to write a report on the subject to accompany that of the Medical Officer. What we shall want to know is the extent to which the native goes out of the district to labour, the numbers that go, where they go, the normal duration of their absence, and the number that return. This must all be based on a form of ‘ immigration and emigration ’ statistics to be kept by the Native Authorities, and Mr. Lake should submit a scheme for carrying this out without unduly interfering with the liberty of the native. We shall also want cultivation statistics, whether native cultivation is increasing by reason of the construction of the railway or otherwise, and whether with an increase in native cultivation a smaller number of tribesmen are leaving the district to seek for work. Again, is the tendency of the man to do less or more cultivation work ? Give a typical day’s work for (1) a man and (2) a woman at various times of the year (planting of the crop, maturing of the crop, gathering of the crop, etc.). To what extent do the children work ? In fine, a very serious and comprehensive study of the life of a typical native, male and female, bringing out all the points which may be of use to us in our efforts to shape affairs in the manner that will benefit the native population.

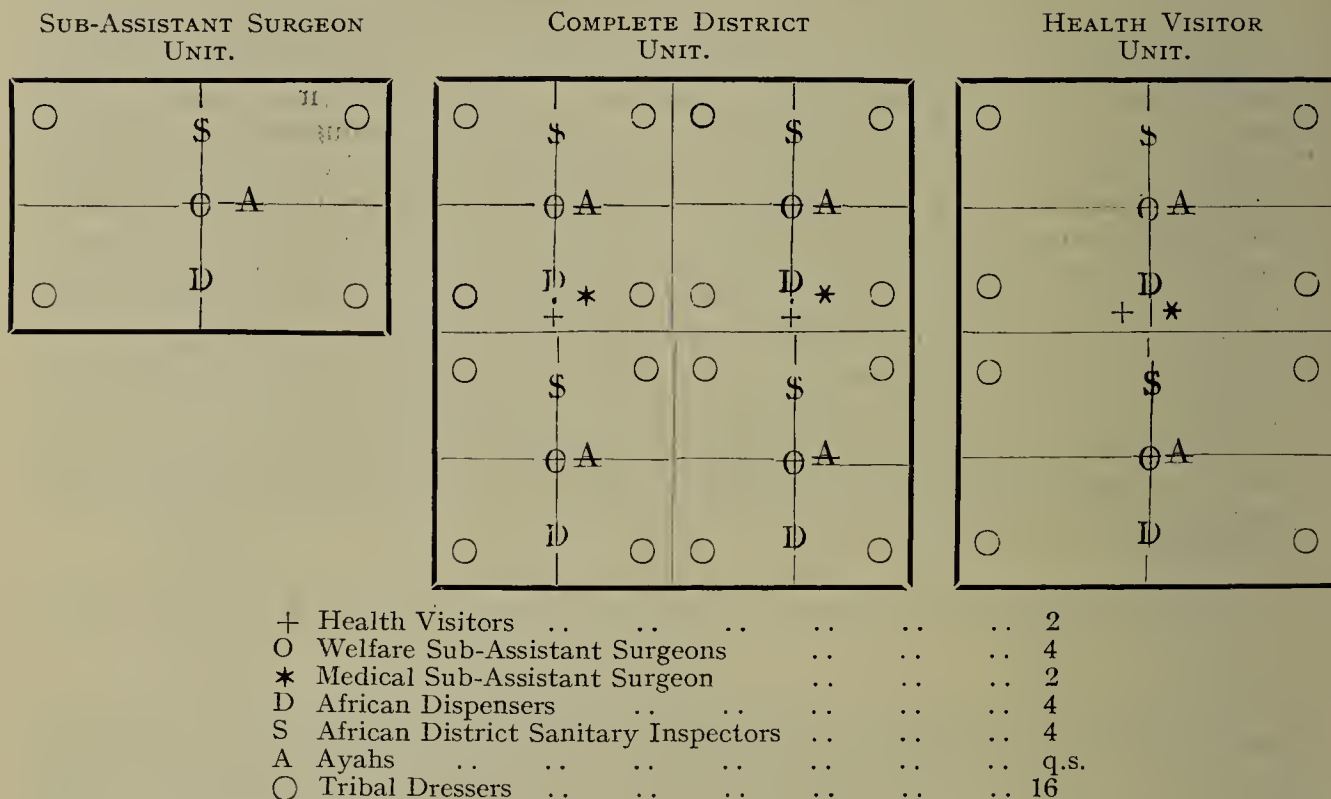
“ The work is one of the most important that can ever be done in Tropical Africa.”

On arriving in the Kahama district your immediate endeavour should be directed towards the selection of suitable sites, the establishment of hospitals and clinics, provision of equipment. The sites, apart from the general suitability as regards health, water supplies, etc., should be selected with reference to the density of the population, accessibility and appropriateness in fitting in with a co-ordinated and uniform scheme. Your main staff will consist of two Health Visitors and four Sub-Assistant Surgeons. The district should be divided up into four definite areas, each in charge of a Sub-Assistant Surgeon, and each of the Health Visitors should be so situated as to facilitate collaboration between the two Sub-Assistant Surgeons, in her own sections, and herself. It is probable that you will choose Kahama (Korogwe) itself as one of the Health Visitor centres, and the assistance of the Sub-Assistant Surgeon in charge of the hospital will therefore be available.

It is proposed if possible to station another Sub-Assistant Surgeon at the centre you decide upon for the other Health Visitor, so that your four Sub-Assistant Surgeons will be entirely at your disposal for work at their own district centres. There is one African Dispenser already working this district and I shall endeavour to supply three more, for a campaign against Yaws, Syphilis and Helminthiasis, which will allow one each for the Sub-Assistant Surgeon sections. There is also one African District Sanitary Inspector in the Kahama district and an endeavour will be made to obtain three more of those trained at Tabora. Each Sub-Assistant Surgeon section will have therefore a Sub-Assistant Surgeon at a central point, one African Dispenser for itinerant treatment of Yaws, Syphilis and Helminthiasis, and one African District Sanitary Inspector for vaccination and the improvement of village sanitation.

Besides this, each half of the district will have the services of one Health Visitor and one medical Sub-Assistant Surgeon, the latter although not strictly attached to your unit will, of course, act under your instructions when necessary. Should the Tribal Dresser system develop to any extent in your district, a total of 16 should be aimed at, and the Dressers should be manipulated to fit in with the general scheme. When trained Ayahs are available each Sub-Assistant Surgeon centre should be supported by a Maternity and Child Welfare Clinic run on similar lines to those in the care of the Health Visitors. Each quadrant, therefore, will have ultimately a small general hospital in charge of a Sub-Assistant Surgeon, a Maternity Clinic in charge of one or more Ayahs, an itinerant

African Dispenser and African District Sanitary Inspector, and its quota of Tribal Dressers, comprising a complete unit—see diagram below :—



2. Having provided hospital, clinic and housing accommodation, laid in stocks of drugs and equipment, and placed your staff, the next step should be the collection of statistics of the population. A census of the village and tribal units of the whole Kahama district should be compiled. Records of emigration and immigration should be kept. Records of all births and deaths, the causes of death, the tribe of the deceased. If possible the number of women of child-bearing age, *i.e.*, between the years of 12-45, and the Fertility Rate should be ascertained. The greatest importance should be attached to the compilation of an accurate record of the date of birth and the date of death of infants and adults, male and female, in order that a thoroughly comprehensive comparative study of the Infant Mortality Rate, the Birth and Death Rate, in any locality or of any tribe may be contrasted with that of the whole Kahama or any other area. Your enquiry will extend into the causes of the decline of the Birth Rate, and the high Infant Mortality Rate—ante-natal, natal and post-natal, the latter more particularly in relation to the first month of life. The influence of absence of the husband, prostitution, illegitimacy, poverty, improper feeding, the effect of the deficiency of foodstuffs, both quantitative and qualitative, on the mother and child. Interference, and the uncleanly dangerous methods adopted by native midwives, during and after birth. The period of suckling, the methods of artificial feeding and of weaning, the influence of epidemic, endemic and infectious diseases, syphilis, yaws, helminthiasis and defective sanitation on the infant. Deaths due to developmental conditions. The ætiology of still births. Parallel enquiry should be made into the causes of Maternal Morbidity and Mortality.

3. Special attention should be paid to the dietetic value of the local foodstuffs, the impairment of physique and virility due to the finer organic changes incident on diminished protein intake and vitamin deficiency, both quantitative and qualitative, and to the grosser manifestations of disease arising consequently.

4. The conduct of the general medical, maternity and child welfare, work will be undertaken as is done at the other stations and established maternity clinics, in the Territory.



5. Ethnological, sociological and economical conditions. A close study should be made of the habits, manners, customs, industries and occupations of the various tribes, which should be correlated with the physical conditions, *i.e.*, climate, altitude, soil, geological formation, rainfall, etc., holding in the different parts of the district. The influence of Christianity, Mohammedanism, paganism, monogamy, and polygamy. The housing, types of huts, domestic arrangements, ventilation, grouping of huts in villages, the disposition of villages, and sanitation. Relation of huts and villages to domestic animals. Water supplies and storage. The various kinds of crops, green vegetables and fruit cultivated, and the animal food, domestic or otherwise, available. Diet, storage of food, methods of protection from contamination and destruction by insects and vermin such as rats, how the food is prepared for consumption ; its variation during the seasons, quantities eaten, and at what hours. Personal cleanliness, clothing, the protection of infants and young children from the elements. The practice of native medicine, midwifery, surgery, witchcraft, and the use of drugs. Initiation, circumcision of males and females, marriage, birth, death, harvest and other ceremonies. The influence of pre-marital sexual intercourse, contraception, abortion and infanticide. The effects of indulgence in alcohol or narcotics. Observations on the health and disease conditions correlated with pastoral, agricultural, hunting tribes, emigration and immigration. Inoculation of smallpox, gonorrhœa and yaws. Social status, physical and mental efficiency of the different tribes in their bearing on education, industries and labour. Animal, insect, pests and parasites. In conclusion, any influence or condition whatsoever relating to the health, morbidity and mortality of the population in general, and the mother and child in particular, should be systematically and thoroughly investigated, recorded, and as far as possible, corrected.

(Signed) J. O. SHIRCORE,

28th January, 1927.

*Director of Medical and Sanitary Services.*

#### VI.—HOSPITALS AND DISPENSARIES.

Additions and alterations to the hospital accommodation in the Territory are detailed below :—

				Cases treated.		
				1925.	1926.	1927.
In-patients	...	...	...	27,931	26,620	28,808
Out-patients	...	...	...	244,442	307,635	367,762
Total	...	...	...	272,373	334,255	396,570

The above figures do not include cases of Yaws and Syphilis treated in the districts, those attended to at the Maternity and Child Welfare Clinics, the returns from small dispensaries in charge of African Dispensers, an unknown number seen by the Medical Staffs attached to the Public Works Department and Railway Extension labour forces.

Total cases In- and Out-patients treated at Government Hospitals and Dispensaries							396,570
Total cases treated at the Maternity and Child Welfare Clinics							27,251
Yaws and Syphilis cases treated on tour in District by Government Staff							3,639
Other cases treated on tour in District by Government Staff							12,945
Yaws and Syphilis cases treated by Medical Missionaries supplied with Government drugs and equipment							20,972
Other cases treated by Medical Missionaries supplied with Government drugs and equipment							6,452
Other cases treated by African Dispensers in independent charge...							5,541
Total	...	...	...	...	...	...	473,370



The returns received of the work performed by the Tribal Dressers in the Mwanza, Bukoba and Central Provinces during an average period of four months towards the end of the year showed an attendance of approximately 32,800 cases, and for the Tukuyu area of the Iringa Province a total of 15,054 attendances, numbers of cases were not returned, during five months.

New buildings erected and improvements and repair to existing medical buildings during 1927.

The following summary of work, and the expenditure incurred during the year, has been supplied through the courtesy of the Director of Public Works :—

<i>Bukoba—</i>						£
Native Hospital ...	...	...	...	...	...	1,995
<i>Biharamulo—</i>						
Dispensary and Hospital	...	...	...	...	...	437
<i>Dodoma—</i>						
Indian and Native Hospital	...	...	...	...	...	2,310
Central Mental Hospital	...	...	...	...	...	4,124
Leper Prison	...	...	...	...	...	1,540
Water Supply, Hospital and Mental Hospital, Dodoma						66
Dispensary and Hospital, Manyoni	...	...	...	...	...	426
Lymph Laboratory and Staff Quarters, Mpwapwa	...	...	...	...	...	2,011
<i>Eastern Province—</i>						
New Wards, Infectious Diseases Hospital, Dar-es-Salaam	...	...	...	...	...	318
Repairs to Hospital, Bagamoyo	...	...	...	...	...	325
New Wards, Native Hospital, Morogoro	...	...	...	...	...	231
Additions to Hospital, Kilosa	...	...	...	...	...	49
Native Hospital, Kilosa...	...	...	...	...	...	245
Hospital and Dispensary, Utete	...	...	...	...	...	200
<i>Kibondo—</i>						
Dispensary and Hospital, Kibondo	...	...	...	...	...	337
<i>Mahenge—</i>						
Native Hospital, Songea	...	...	...	...	...	3,125
Repairs to Native Hospital, Mahenge	...	...	...	...	...	113
<i>Mwanza—</i>						
Re-conditioning of Fort as Hospital, Ikoma	...	...	...	...	...	94
<i>Northern Province—</i>						
Extension to European Hospital, Arusha	...	...	...	...	...	59
Dispensary and Hospital, Kibaya	...	...	...	...	...	500
Native Hospital, Moshi	...	...	...	...	...	1,164
European Hospital and Nurses' Quarters, Moshi	...	...	...	...	...	1,446*
Mortuary, Arusha	...	...	...	...	...	15
<i>Tabora Province—</i>						
Hospital and Dispensary, Kahama	...	...	...	...	...	719

\* £446 met from Rothschild Trustees' Funds.

VII.—PRISONS AND ASYLUMS.—REPORT ON THE HEALTH OF PRISONERS FOR 1927.

Name of Prison.	1 Number of prisoners in prison on 31.12.26	2 Number of prisoners committed to prison during 1927	3 Number of prisoners in prison on 31.12.27	4 Daily average number of prisoners, 1927.	5 Number admitted to prison sick bay during 1927.	6 Number admitted to Govern- ment hospitals, 1927.	7 Daily average on sick list.	8 Number of deaths of prisoners.	9			10	
									Cause of death in each case.	Period of detention in prison prior to date of death.	Prisoners released on medical grounds.	Cause of release in each case.	
Arusha ..	42	231	50	48.00	—	2	0.06	—	—	Y. —	Nil	N.a.	
Bagamoyo ..	12	81	13	13.75	—	8	0.90	—	—	M. —	Nil	N.a.	
*Biharamulo ..	—	143	—	11.90	—	—	—	—	—	—	—	—	
Bukoba ..	166	480	141	145.50	—	20	17.80	1	1. Dysentery ..	—	Nil	N.a.	
Dar-es-Salaam	229	1,499	181	200.00	122	120	6.80	6	1. Influenza ..	1	Nil	N.a.	
									2. Broncho-Pneumonia ..	8			
									3. Tuberculosis: Lungs..	16			
									4. Jaundice ..	7			
									5. Abscess of Liver ..	2			
									6. Double Pneumonia ..	18			
Dodoma ..	113	354	108	121.40	49	55	18.50	3	1. Malarial Cachexia ..	19	1	Debility following pneumonia.	
									2. Malaria ..	10		N.a.	
									3. Malaria and Diarrhoea	27		N.a.	
Iringa ..	31	118	20 & 1 lunatic	29.18	—	—	3.78	—	—	—	Nil	N.a.	
Kahama ..	31	101	6	20.60	—	—	1.34	—	—	—	Nil	N.a.	
*Kasulo ..	—	49	—	1.80	—	—	—	—	—	—			
*Kibondo ..	—	23	—	1.90	—	—	—	—	—	—			
Kigoma ..	44	179	39	50.30	—	—	—	1	1. Tubercular Meningitis (a civil lunatic)	—	Nil	N.a.	
Kilosa ..	17	239	22	27.70	—	4	0.88	—	—	—	Nil	N.a.	
Kilwa ..	29	92	13	19.07	—	1	0.17	—	—	—	Nil	N.a.	
Kondoa-Irangi	16	220	50	28.49	5	9	0.77	1	1. Pneumonia ..	3	1	Pulmonary Tuberculosis.	
Lindi ..	38	121	36	42.92	1	7	1.84	1	1. Atrophy of Liver ..	25	Nil	N.a.	
Lushoto ..	23	143	34	24.00	—	32	2.27	—	—	—	Nil	N.a.	
Mahenge ..	7	28	7	7.60	—	—	—	—	—	—	Nil	N.a.	
*Manyoni ..	—	40	—	5.00	—	—	—	—	—	—			
*Masasi ..	—	11	—	3.00	—	—	—	—	—	—			
*Maswa ..	—	210	—	13.00	—	—	—	—	—	—			
*Mbeya ..	—	56	—	39.59	—	—	—	—	—	—			

\* Small stations—further details are lacking.

## REPORT ON THE HEALTH OF PRISONERS FOR 1927—continued.

Name of Prison.	1 Number of prisoners in prison on 31.12.26	2 Number of prisoners committed to prison during 1927	3 Number of prisoners in prison on 31.12.27	4 Daily average number of prisoners, 1927.	5 Number admitted to prison sick bay during 1927.	6 Number admitted to Govern- ment hospitals, 1927.	7 Daily average on sick list.	8 Number of deaths of prisoners.	9			10	
									Cause of Death in each case.	Period of detention in prison prior to date of death.	Prisoners released on medical grounds.	Cause of release in each case.	
*Mbulu	—	101	—	20.00	—	—	—	—	—	Y.	M.	D.	N.a.
Mikindani	11	136	10	13.60	—	—	0.87	—	—	—	—	—	Nil
*Mkalma	—	53	—	15.00	—	—	—	—	—	—	—	—	Nil
Morogoro	75	222	103	95.00	44	—	7.00	1	1. Chronic Bronchitis and Heart Disease	After 5 years	—	—	N.a.
Moshi ..	28	516	89	45.50	5	—	10.15	—	—	—	—	—	Nil
Musoma	69	245	65	64.00	—	—	5.20	—	—	—	—	—	Nil
Mwanza	174	553	167	158.00	65	6	10	7	1. Tuberculosis of Lungs	—	—	—	Nil
									2. " "	—	—	—	N.a.
									3. " "	—	—	—	N.a.
									4. " "	—	—	—	N.a.
									5. Cellulitis ..	—	—	—	N.a.
									6. Ascitis ..	—	—	—	N.a.
									7. Hip Joint Disease	—	—	—	N.a.
									1. Suicide by Hanging ..	—	—	—	Nil
Namanyere	22	176	32	38.22	—	—	5.15	—	—	—	—	—	N.a.
*Njombe	—	50	—	17.00	—	—	—	—	—	—	—	—	Nil
*Nzega ..	—	216	—	12.40	—	—	—	—	—	—	—	—	Nil
Pangani	14	94	15	19.80	11	—	4	—	1. Tertiary Syphilis	—	—	—	N.a.
Shinyanga	84	128	35	56.00	28	—	2.5	2	2. Acute Osteomyelitis ..	—	—	—	N.a.
									1. Leprosy	—	—	—	Nil
Singida	23	89	23	12.00	—	1	0.002	—	1. Aortic Regurgitation ..	—	—	—	Nil
Songea	16	69	23	21.70	—	—	0.42	1	2. Lobar Pneumonia	—	—	15	N.a.
Tabora	124	683	200	178.30	87	47	11.50	6	3. " "	—	—	22	N.a.
									4. Chronic Colitis	—	—	2	N.a.
									5. Cellulitis of neck	—	—	21	N.a.
									6. General Debility	—	—	—	N.a.
Tanga ..	131	389	136	136.53	—	120	3.15	1	1. Pulmonary Tuberculosis	1	—	97	Nil
									1. Broncho-Pneumonia ..	—	—	—	N.a.
Tukuyu	107	141	82	84.54	4	38	1.2	—	1. Chronic Bronchitis	—	—	59	N.a.
Tunduru	—	14	4	2.25	—	3	0.29	1	1. Chronic Bronchitis	—	—	—	N.a.
Utete ..	9	57	7	8.50	5	12	0.31	1		—	—	—	N.a.

\* Small stations—further details are lacking.



Name of Prison	11 System of confinement : Association Cells (A.C.), Single Cells (S.C.).	12 Cubic space available at night per prisoner taking average number of prisoners.	13 Floor space in square feet per prisoner taking average number of prisoners.	14 Labour on which prisoners are employed and hours of work.	15 Sanitary condition of prison.	16 Are all cells cemented ?	17 Prevailing diseases.	18 Rules as to diet and hours of meals. What variety is provided : green food ? meat ?
Arusha ..	A.C. ..	cu. ft. 500	40	Wood cutting, mending roads, sanitary work in gaol, water carrying. <i>Hours</i> *: 6.30 a.m. to 4 p.m. <i>Saturdays</i> : 6.30 a.m. to noon. <i>Sundays</i> : No work.	Excellent ..	Yes	Intestinal Para- sites, Ulcers, and Chest complaints.	According to Prison Ordi- nance.
Bagamoyo ..	A.C. ..	2,654	295	* One hour's break at noon. Cutting grass and wood for Prison and Police Lines. General sanitation of the gaol, Police Lines and Boma.	Good ..	Yes	Nil ..	6 a.m. and 12 noon and 5.30 p.m. Meat, potatoes, beans ; fish is provided three times per week.
Bukoba ..	A.C. 4, S.C. 6, hospital 1, remand 1	336.5	36.4	Firewood cutting, quarrying, general labour, carpentry, mat weaving and pottery. <i>Hours</i> : 6 a.m. to noon, 1 to 4 p.m.	Excellent ..	Yes	Ulcers, Malaria, Diarrhoea and Bronchitis	6 a.m., 12 noon and 5 p.m. Food as per Ordinance— green food and meat.
Dar-es-Salaam	A.C. 23, S.C. 7	792	66	Stone breaking, tailoring, mat weaving, wood cutting and general labour for essential public works. From 6.30 a.m. till noon and 1 to 4 p.m.	Ventilation and lighting of 7 smaller cells poor. Prison kept clean	Yes	Malaria and Chest troubles, epi- demic of Infl- enza threatened towards end of year, but was checked by making all prisoners parade twice daily for an antiseptic gargle	According to Prison Ordinance —12 noon to 1 p.m., 4.30 p.m. to 5.30 p.m.
Dodoma ..	Cells and Associa- tion Wards	440	375.50	Brick making, masonry, build- ing, carpentry, decorating, lime burning, station and town improvements ; sani- tation, water carrying, wood cutting, quarrying and cul- tivation of Prison garden	Very good ..	Yes	Pneumonia, Bron- chitis, Malaria, Diarrhoea and Conjunctivitis	According to scale laid down in General Notice No. 171 of 1924. 12 to 1 p.m., 4.30 to 5.30 p.m. Sick prisoners are put on to special diet accord- ing to Medical Officer's in- structions.
Iringa ..	A.C. ..	784	60	Cleaning Prison latrine, wood cutting, cultivation and town improvements. 6.30 to 12 noon, 1 to 4.30 p.m.	Very good ..	Originally were so, but badly require re-ce- menting	Bronchitis, Ulcers, Diarrhoea, Con- junctivitis and minor injuries	Rationed in accordance with scale laid down in Govern- ment Notice No. 171 of 1924. 6 a.m., 12 noon and 5 p.m.

REPORT ON THE HEALTH OF PRISONERS FOR 1927—continued.

Name of Prison.	11 System of confinement: Association Cells (A.C.), Single Cells (S.C.).	12 Cubic space available at night per prisoner taking average number of prisoners.	13 Floor space in square feet per prisoner taking average number of prisoners.	14 Labour on which prisoners are employed and hours of work.	15 Sanitary condition of prison.	16 Are all cells cemented?	17 Prevailing diseases.	18 Rules as to diet and hours of meals. What variety is provided: green food? meat?
Kahama	.. A.C.	cu. ft. 700	46·2	General and town improve- ment. 6.30 to 12 noon and 1 to 4.30 p.m.	Satisfactory	—	Nil	Food is supplied according to dietary scale laid down for all prisoners.
Kigoma	.. A.C.	999·5	75	Grass cutting, wood cutting, water and garden work. 7.30 a.m. to 12 noon, 1 to 3.30 p.m.	Good, some re-roofing has been done, and more should be done soon	Yes	Ankylostomiasis, Malaria and Venereal	Three meals per diem: 7 a.m., 12 noon and 4.30 p.m. Mealie meal, manioc beans, sweet potatoes, meat, salt, lemon juice and native spinach. Meat to long-term prisoners, $\frac{1}{2}$ lb. twice a week.
Kilosa	.. A.C.	500	30	Building Police Lines, carry- ing wood and water. 6.30 a.m. to 12 noon and 1 to 4.30 p.m.	Good	Yes	Nil	6 a.m., 12 noon and 5 p.m. Lemons are supplied; meat to long-service prisoners and remands.
Kilwa	.. A.C.	1,041	150	Carrying water and fuel for officials and gaol	Good	Yes	Sore throat and minor injuries	Two meals a day at regular hours. Preserved meat was provided when received. Sometimes fresh fish.
Kondoa-Irangi	.. A.C.	869	64	Prison garden, roads, wood cutting, lime burning, water drawing. 6.30 a.m. to 4 p.m.	Satisfactory. The prison has always been kept in a per- fectly clean , and orderly manner at all times	Yes	Malaria, Bronchitis and minor in- juries	As per Prison Ordinance. Meat and milk are given to Masai prisoners. 6 a.m., 12 noon and 5 p.m.
Lindi	.. A.C.	1,370	1,400	Unskilled. 7 to 12 noon, 1 to 4 p.m.	Excellent	Yes	Yaws and Malaria	6 a.m. morning porridge; 12 noon grain, vegetables and ghee; 5 p.m. fish, grain and fruit.
Lushoto	.. A.C.	634	45	Roads, prison garden, wood and water transport and building. 6.30 to 12 noon, 1 to 3.30 p.m.	Good	Yes	Minor injuries, coughs and colds	12 noon and 5.30 p.m. Vege- tables three times a week; meat daily for long-termers, diet as per regulations.
Mahenge	.. A.C.	400	62	Cultivating prison farms, cut- ting and carrying firewood, drawing water and cleaning Police Lines daily. Hours: 6 a.m., 12 noon and 5 p.m.	Satisfactory	No; beaten lime and sand	Minor injuries, stomach and bowel troubles and colds	Meat and fish always avail- able; bananas, pumpkins and European vegetables are also supplied when neces- sary.

Name of Prison.	11 System of confinement: Association Cells (A.C.), Single Cells (S.C.).	12 Cubic space available at night per prisoner taking average number of prisoners.	13 Floor space in square feet per prisoner taking average number of prisoners.	14 Labour on which prisoners are employed and hours of work.	15 Sanitary condition of prison.	16 Are all cells cemented?	17 Prevailing diseases.	18 Rules as to diet and hours of meals. What variety is provided: green food? meat?
Mikindani	..	cu. ft. 322	84	Repairing roads and drains, and carrying fuel for town- ship water supply. <i>Week-</i> <i>days</i> : 7 a.m. to 12 noon, 1 to 4 p.m. <i>Saturdays</i> : 6 a.m. to 12 noon.	Good ..	Yes ..	Nil ..	12 noon and 5.30 p.m. Millet, maize, maize flour, ghee, salt and beans.
Morogoro	..	382	37	General labour: lime burn- ing, wood cutting, prison garden and stone carrying, mason and carpentry work, etc. 6.30 to 12 noon, 1 to 4 p.m.	Very good	Yes ..	Malaria, Digestive troubles, some Diarrhoea (Dy- sentry), few old cases of Tubercle of the Lungs	European, Eurasian, Indian and Arab diet as scale laid down in Prison Ordinance No. 14 of 1921, <i>i.e.</i> , wheat, flour, rice, beans, potatoes, meat, ghee, onions, etc. African scale as laid down in the Official Gazette No. 45 of 17.10.24, <i>i.e.</i> , whole maize meal, beans, manioc, preserved meat, fresh meat, ghee, etc. Two meals a day: 12 noon and 5.30 p.m. Porridge at 6 a.m. Meat, bananas and limes are provided.
Moshi ..	.. A.C.	300	30	Cleaning of Police and prison grounds, chopping wood, cooking, repairing Police and prison clothes, carpen- try, lime burning, culti- vating prison garden, build- ing. 6.30 to 12 noon and 1 to 4 p.m. Manual. 6 a.m. to 12 noon, 1 to 4 p.m.	Very good	Yes ..	Nil ..	
Musoma	.. A.C.	400	27	Fuel cutting, water carrying, etc. 6.30 a.m. to 12 noon, 1 to 4 p.m.	Good ..	Yes ..	Nil ..	According to Prison Ordi- nance.
Mwanza	.. A.C.	140	14	Road repairing, town improve- ment, building, grass cultiva- tion and clearing. <i>Hours</i> : 6 a.m. to 12 noon, 1 to 4 p.m. No work on Sunday.	Good ..	Yes ..	Malaria and local injuries	Maize (whole), beans, potatoes, ghee, salt, lemons (weekly). Long-term prisoners get preserved meat, 2 oz. daily. 6 a.m., 12 noon and 5.30 p.m. According to scales of rations in Government Notice Nos. 171 of 1924 and 80 of 1925.
Namanyere	.. A.C.	253.04	25.15		Satisfactory	No; only burnt bricks powdered	Bronchitis, Ulcers, Malaria, In- fluenza and local injuries	



REPORT ON THE HEALTH OF PRISONERS FOR 1927—continued.

Name of Prison.	11 System of confinement : Association Cells (A.C.), Single Cells (S.C.).	12 Cubic space available at night per prisoner taking average number of prisoners.	13 Floor space in square feet per prisoner taking average number of prisoners.	14 Labour on which prisoners are employed and hours of work.	15 Sanitary condition of prison.	16 Are all cells cemented ?	17 Prevailing diseases.	18 Rules as to diet and hours of meals. What variety is provided : green food ? meat ?
Pangani ..	A.C. ..	cu. ft. 400	38	Road repairs, wood cutting, repairs to buildings. <i>Hours</i> : 7 a.m. to 4 p.m., with 1 hour's rest from 12 noon to 1 p.m.	Extremely satisfactory	Yes ..	Nil ..	Three meals. <i>Short-term</i> prisoners get maize, beans, millet, ghee, salt and lemon. <i>Long-term</i> prisoners get meat, fish, sugar cane, and cassava, beans, maize and millet. <i>Short-termers</i> : 6 a.m. porridge of millet flour ; 12 noon, " ugali " of Mtama flour, beans, ghee and salt ; 5.30 p.m. same as 12 noon. <i>Long-</i> <i>termers</i> : 6 a.m. porridge of Mtama flour ; 12 noon, " ugali," beans, ghee, salt and meat ; 5.30 p.m. same as 12 noon. No vegetables or fruit available. Millet, maize, ghee, beans, lemon, vegetables, salt and onions. 12 noon and 5 p.m. No meat for short-term prisoners.
Shinyanga ..	A.C. ..	205.5	15.5	Building, and stone, fuel and water carrying. 6.30 a.m. to 12 noon and 1 to 4 p.m.	Good ..	Yes ..	Local injuries, Bronchitis, Malaria, Diarrhoea, Chickenpox, etc.	
Singida ..	A.C. ..	500	40	Water carrying, fuel cutting and carrying, and general labour round the station ; Prison and cultivating Government prison garden.	Satisfactory	Yes ..	Nil ..	
Songea ..	A.C. ..	500	40	Unskilled, road making, build- ing, repairs, station improve- ments, general labour. <i>Hours</i> : 6.30 a.m. to 12 noon, 1 to 4.30 p.m.	Poor ; a new gaol is in process of construc- tion	No ; the floors are of beaten lime	Bronchitis and Rheumatism	Scale as laid down in Govern- ment Circular No. 171 of 1924. Meals : 6 a.m., 12 noon and 5 p.m. Dried fish once a week in lieu of fresh meat, cassava, potatoes, germinated beans and lemons.
Tabora ..	A.C. 19, S.C. 23	319	38	<i>Gangs</i> : Police and Prison duties, town improvement and other non-Police and Prison duties. 6.30 to 12 noon, 1 to 4 p.m. <i>Prison</i> <i>duties</i> : 6.30 a.m. to 12 noon, 1 to 4.30 p.m.	Satisfactory	Yes ..	Cold and Coryza Ulcers, Injuries and Eye Diseases	6 a.m., maize and cassava ; 12 noon, maize and beans ; 6 p.m., maize and beans. <i>Long term</i> : 6 oz. of meat, $\frac{1}{2}$ oz. ghee and $\frac{1}{4}$ oz. of salt daily ; 8 oz. fresh vegetables on Tuesdays, Thursdays, Saturdays and Sundays. <i>Short term</i> : 8 oz. fresh vegetables as above, $\frac{1}{4}$ oz. of ghee and $\frac{1}{4}$ oz. of salt daily.

# REPORT ON THE HEALTH OF PRISONERS FOR 1927—continued.

Name of Prison.	11 System of confinement : Association Cells (A.C.), Single Cells (S.C.).	12 Cubic space available at night per prisoner taking average number of prisoners.	13 Floor space in square feet per prisoner taking average number of prisoners.	14 Labour on which prisoners are employed and hours of work.	15 Sanitary condition of prison.	16 Are all cells cemented ?	17 Prevailing diseases.	18 Rules as to diet and hours of meals. What variety is provided : green food ? meat ?
Tanga ..	A.C. 26, S.C. 6	cu. ft. 343	44	Tailoring, soap making, lime burning, wood cutting, general repairs, sanitation, station and town improve- ments. 6.30 a.m. to 12 noon, 1 to 4.30 p.m. All gangs working over $\frac{1}{2}$ mile from the prison take their midday meal with them (it is cooked in the morning)	Satisfactory	Yes	Malaria, Bron- chitis, Constipa- tion, Myalgia and minor in- juries	Three meals per diem : 6 a.m. 12 noon and 5.30 p.m. <i>Natives</i> : lemons four times per week and 6 oz. meat. <i>Europeans</i> : Vegetables daily and 12 oz. meat as per scale, etc. (Prison Ordinance). <i>European-Asiatic prisoners</i> : 3 meals per diem at suitable hours.
Tukuyu ..	Association Wards 5, Cells 4	458	94	Public works, repairs to Prison, gardening, wood- cutting, carrying, cleaning. 6.30 a.m. to 12 noon, 1 to 4.30 p.m.	Excellent ..	No	Nil .. ..	<i>Short-term prisoners</i> : 2 lb. mealies, 8 oz. beans, $\frac{1}{4}$ oz. salt and ghee. <i>Long-term prisoners</i> : $\frac{1}{2}$ lb. meat three times weekly, with 3 bananas, 6 oz. beans, $\frac{1}{4}$ oz. salt. Other days : 2 lb. mealies, 6 oz. beans, 6 bananas and ghee in addition. Potatoes are supplied when bananas are not available. 12 noon and 5 p.m. 10 a.m. and 5 p.m., millet flour and beans and meat, etc.
Tunduru ..	A.C. ..	2,500	160	General station work. 6 a.m. 12 noon, 2 to 4 p.m.	Satisfactory	Yes	Bronchitis, Con- stipation, Colic, Malaria, Diarrhoea, Head- aches, etc.	Twice a day, 12 noon and 5.30 p.m., mealie meal, beans, rice, meat and limes— cassava for long-term prisoners.
Utete ..	A.C. ..	1,531	110	Prison industries, town, station, Police Lines and Prison improvements and sanitary work for gaol. 7 a.m. to 12 noon and 2 to 4 p.m.	Satisfactory	No; the floor made of mud plaster- ing	Fever, Diarrhoea, etc.	

## REPORT ON THE HEALTH OF PRISONERS FOR 1927—continued.

Name of Prison.	19. Vaccinations.					20. Infective diseases.			
	Number during 1927.		Number not protected against small-pox.	Number excused vaccination on account of previous smallpox or successful recent vaccination.	Failures.	Number of cases of			Others.
	Vaccinated.	Successful.	Modified.			Chickenpox.	Dysentery.	Influenza.	
Arusha ..	57	31	19	7	—	11	3	—	6.
Bagamoyo ..	Nil	—	—	—	—	—	—	—	—
Bukoba ..	Smallpox not endemic here, no cases having occurred for many years	—	—	—	—	—	1	—	2.
Dar-es-Salaam ..	Nil	—	—	—	—	—	1	11*	21.
Dodoma ..	145	—	—	—	—	—	—	—	—
Iringa ..	No record of any having been carried out	—	—	—	—	—	—	—	—
Kahama ..	Nil	—	—	—	—	—	—	—	—
Kigoma...	All vaccinated ..	—	—	—	—	—	—	—	—
Kilosa ..	Nil	—	—	—	—	—	—	—	—
Kilwa ..	All prisoners were already vaccinated and so no vaccination was done	—	—	—	—	—	—	—	—
Kondoa-Irangi..	All prisoners not previously vaccinated or pock-pitted are vaccinated on admission to Prison	—	—	—	—	1	—	—	—
Lindi ..	Prisoners are vaccinated on admission	—	—	—	—	—	—	—	1 case of nerve leprosy.
Lushoto ..	32	30	—	2	—	—	1	6	—
Mahenge ..	22	18	4	—	—	—	—	—	—
Mikindani ..	35	18	—	17	—	—	—	—	—
Morogoro ..	Nil	—	—	—	—	—	—	—	—
Moshi ..	Nil	—	—	—	—	—	—	—	—
Musoma ..	All prisoners vaccinated on admission	—	—	—	—	—	—	—	—



REPORT ON THE HEALTH OF PRISONERS FOR 1927—continued.

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Name of Prison.	19. Vaccinations.					20. Infective diseases.			
	Number during 1927.				Number excused vaccination on account of previous smallpox or successful recent vaccination.	Number not protected against small-pox.	Number of cases of		
	Vaccinated.	Successful.	Modified.	Failures.			Chickenpox.	Dysentery.	Influenza.
Mwanza ..	Nil	—	—	—	—	—	—	—	1 Tuberculosis.
Namanyere ..	When lymph available prisoners are vaccinated on admission	—	—	—	—	2	20	—	—
Pangani ..	Nil	—	—	—	—	—	—	—	—
Shinyanga ..	38	24	—	14	All prisoners were vaccinated on 18.11.27 owing to outbreak of chickenpox	4	—	—	—
Singida ..	Nil	—	—	—	—	—	1	—	—
Songea ..	Nil	—	—	—	—	1	—	—	—
Tabora ..	121	78	32	11	78	—	—	—	—
Tanga ..	Nil	—	—	—	519	—	—	Mild epidemic	—
Tukuyu ..	45	2	—	43	78	12	—	—	—
Tunduru ..	Nil	—	—	—	—	—	—	—	—
Utete ..	All vaccinated previously	—	—	—	—	—	—	—	—

## REPORT ON THE HEALTH OF PRISONERS FOR 1927—continued.

Name of Prison.	21. Insects and other Pests in Prison.					
	Lice.	Bugs.	Fleas.	Ornithodoros moubata.	Rats.	Mice.
Arusha ..	—	—	—	—	—	—
Bagamoyo ..	—	—	—	—	—	—
Bukoba ..	—	—	—	—	—	—
Dar-es-Salaam ..	—	—	—	—	Yes ..	Yes.
Dodoma ..	—	—	—	—	—	—
Iringa ..	—	—	—	—	—	—
Kahama ..	—	—	—	—	—	—
Kigoma ..	Yes, occasionally ..	Yes, occasionally ..	Yes, occasionally ..	Frequent cleaning of prisoners and cells keeps the prison clean most of the year	—	—
Kilosa ..	—	—	—	—	—	—
Kilwa ..	There were a few bugs and fleas. In December there was a great number of house flies	—	—	—	—	—
Kondoa-Irangi ..	—	—	—	—	Yes ..	..
Lindi ..	—	—	—	—	Yes ..	..
Lushoto ..	—	—	—	—	—	—
Mahenge ..	—	—	—	—	—	—
Mikindani ..	No ; but the bedding is put in the sun four hours daily.	—	—	—	Rats and flies ; rats trapped	—
Morogoro ..	—	—	—	—	—	—
Moshi ..	—	—	—	—	—	—
Musoma ..	Mosquitoes numerous	—	—	—	—	—
Mwanza ..	—	—	—	—	—	—
Namanyere ..	—	—	—	—	Yes ; traps and poison used	—
Pangani ..	—	—	—	—	—	—
Shinyanga ..	—	—	—	—	Rats ; laying of traps and using barium carbonate	—
Singida ..	Fleas, bugs, lice—disinfected.	—	—	—	Food kept in rat-proof bins	—
Songea ..	—	—	—	Ticks abound in gaol	—	—
Tabora ..	—	—	—	—	Yes (cats and traps)	—
Tanga ..	—	—	—	—	—	—
Tukuyu ..	—	—	—	—	—	—
Tunduru ..	—	—	—	—	—	—
Utete ..	The mud-plastered floor attracts fleas and ticks. Frequent burning of floor with methylated spirit	—	—	—	—	—

# REPORT ON THE HEALTH OF PRISONERS FOR 1927—continued.

Name of Prison.	22. Suggestions by the Medical Officer in charge as to improvements required and date when made.			
	(a) Accommodation and Ventilation.	(b) Diet.	(c) Sanitation.	(d) Others.
Arusha ..	Nil	Nil	Nil	Nil
Bagamoyo ..	Nil	Nil	Nil	Nil
Bukoba ..	Nil	Nil	Nil	Nil
Dar-es-Salaam ..	That the ventilation of the new isolated ward and new cells be increased	Nil	Nil	That blankets be allowed to each sick prisoner.
Dodoma ..	Nil	Nil	In connection with latrines and bathrooms, a sump pit has been made and all drainage from them is carried into it by open drains	Nil
Iringa ..	Cemented floors .. ..	Nil	Nil	Nil
Kahama ..	Nil	Nil	Nil	Nil
Kigoma ..	Nil	Nil	Replacement of old latrine buckets	Nil
Kilosa ..	Nil	Nil	Bucket latrine to be put in ward as soon as funds are available	Nil
Kilwa ..	Nil	Nil	Nil	Change of mats.
Kondoa-Irangi ..	That a hospital cell be built in Prison	Nil	Nil	Nil
Lindi ..	Nil	Nil	Drainage system to be over-hauled	Nil
Lushoto ..	Nil	Nil	Constant suggestions that drains and latrines should be improved	Nil
Mahenge ..	Nil	Nil	Small details occasionally ..	Nil
Mikindani ..	Kitchen and ventilation ..	Nil	Nil	Nil



# REPORT ON THE HEALTH OF PRISONERS FOR 1927—continued.

Name of Prison.		22. Suggestions by the Medical Officer in charge as to improvements required and date when made.			
		(a) Accommodation and Ventilation.	(b) Diet.	(c) Sanitation.	(d) Others.
Morogoro	..	Nil	Preserved Mwanza meat for use. Wild spinach to be gathered (November)	New latrine accommodation for "offenders," and later whole latrine system to be changed to one similar to the new one erected at the new Roman Catholic school	Mosquito netting for Prison hos- pital ward.
Moshi	..	Nil	Nil	Nil	Nil
Musoma	..	Medical Officer in 1926 recom- mended that a hospital be built inside the prison and that latrine buckets be used in place of the kerosene tins then in use	Nil	See (a) .. ..	Nil
Mwanza	..	Nil	Nil	Nil	Nil
Namanyere	..	Nil	Nil	Nil	Nil
Pangani	..	Nil	Nil	Nil	Nil
Shinyanga	..	Nil	Nil	Nil	Nil
Singida	..	Nil	Nil	Nil	Nil
Songea	..	A new gaol .. ..	Nil	Nil	Nil
Tabora	..	Nil	Nil	Nil	Nil
Tanga	..	Nil	Nil	New soakage pits have been erected by P.W.D. and work satisfactorily	Nil
Tukuyu	..	Nil	Nil	Nil	Nil
Tunduru	..	Nil	Nil	Nil	Nil
Utete	..	Frequent whitewashing and plas- tering with mud	Nil	Nil	Nil

# REPORT ON THE HEALTH OF PRISONERS FOR 1927—continued.

23. Attention taken by the Prison Authorities as a result of 22.				
Name of Prison.	(a)	(b)	(c)	(d)
Arusha ..	Nil	Nil	Nil	Nil
Bagamoyo ..	Nil	Nil	Nil	Nil
Bukoba ..	Nil	Nil	Nil	Nil
Dar-es-Salaam ..	Improved, but still inadequate in cells	Nil	Nil	Two blankets allowed.
Dodoma ..	Nil	Nil	Nil	Nil
Iringa ..	Recommended that provision be made for above in next year's estimates	Nil	Nil	Nil
Kahama ..	Nil	Nil	Nil	Nil
Kigoma ..	Nil	Nil	Latrine buckets replaced	Nil
Kilosa ..	Nil	Nil	Pending ..	Nil
Kilwa ..	Nil	Nil	..	Nil
Kondoa-Irangi ..	The cell has been constructed ..	Nil	Now under attention	Nil
Lindi ..	Nil	Nil	Reported to Headquarters, early action to be taken	Nil
Lushoto ..	Nil	Nil	Always attended to	Nil
Mahenge ..	Nil	Nil	..	Nil
Mikindani ..	Yes ..	Nil	Approved by Commissioner of Prisons and will be put in hand at the beginning of the new financial year	Suggestions carried out.
Morogoro ..	Nil	Preserved meat now used	Nil	Nil
Moshi ..	Nil	Nil	Latrine buckets were obtained	Nil
Musoma ..	Nil	Nil	Three soakagepits and one washing slab have been made	Nil
Mwanza ..	Nil	Nil	Nil	Nil
Namanyere ..	Nil	Nil	Nil	Nil
Pangani ..	Nil	Nil	Nil	Nil
Shinyanga ..	Nil	Nil	Nil	Nil
Singida ..	Nil	Nil	Nil	Nil
Songea ..	New gaol—building of same proceeding	Nil	Nil	Nil
Tabora ..	Nil	Nil	Nil	Nil
Tanga ..	Nil	Nil	Nil	Nil
Tukuyu ..	Nil	Nil	Nil	Nil
Tunduru ..	Nil	Nil	Nil	Nil
Utete ..	Yes ..	Nil	Nil	Nil

REPORT ON THE HEALTH OF PRISONERS FOR 1927—continued.

Name of Prison.	24	25 Is drinking water pro- vided for use at night ?	26 Is there a weight register and is it kept up to date ?	27 What number of blankets is provided for each prisoner ?	28 Is the clothing sufficient ?	29 Further remarks and suggestions.
Arusha .. ..	Sanitary buckets, etc.	Yes ..	Yes ..	One—two in cold weather	Yes .. ..	Asylum.—The Prison was also used as an asylum. There were four lunatics admitted to the asylum during the year. Owing to the good food, dry sleeping accommodation and regular hours, the great majority of prisoners enjoyed excellent health. There is no prison hospital, and all seriously ill were admitted to specially guarded wards at the native hospital. Nil Nil Germinating beans should be included in the diet.
Bagamoyo ..	One latrine bucket for each cell	Yes ..	Yes ..	One .. ..	Yes .. ..	
Bukoba ..	Night pans provided	Yes ..	Yes ..	One .. ..	Yes .. ..	
Dar-es-Salaam ..	Latrine buckets, emptied in morning	Yes ..	Yes ..	One mat and one blanket for the healthy prisoners. One mat and two blankets for sick prisoners	Yes .. ..	
Dodoma ..	Night soil pans and urinal pails placed in cells at night	Yes ..	Yes ..	Mats, skins and blankets for sleep- ing. Two suits of clothes provided for each prisoner	Yes .. ..	Nil
Iringa ..	Buckets placed in each cell at night, removed in the morning	Yes ..	Yes ..	Two .. ..	Yes .. ..	Nil
Kahama ..	Buckets are supplied at night	Yes ..	—	One .. ..	Yes .. ..	None.
Kigoma ..	Latrine buckets ..	Yes ..	Yes ..	One .. ..	Yes .. ..	Nil
Kilosa ..	Latrine pans ..	Yes ..	Yes, for long- term prisoners	One .. ..	Yes .. ..	Nil
Kilwa ..	There are all sanitary arrangements in the cells for the use of prisoners at night	Yes ..	Yes ..	One .. ..	No .. ..	There should be an attempt made to improve the intellectual side of the prisoners admitted in order to improve their livelihood outside when released. There should be a prison vegetable garden at the Singino Hill near the water supply, as vegetables are very scarce in the dry months.



REPORT ON THE HEALTH OF PRISONERS FOR 1927—continued.

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Name of Prison.	24 What sanitary arrangements are there in the cells for use at night ?	25 Is drinking water provided for use at night ?	26 Is there a weight register and is it kept up to date ?	27 What number of blankets is provided for each prisoner ?	28 Is the clothing sufficient ?	29 Further remarks and suggestions.
Kondoa-Irangi ..	Latrine pans ..	Yes	Yes	Two ..	No; the clothing of the convicts is very ragged; the matter has been reported	Nil
Lindi ..	Buckets ..	Yes	Yes	One blanket in hot season and two in cold	Sufficient ..	Kitchen roof and range require improvements and repair. The female ward should have a sunproof roof.
Lushoto ..	Pan placed in cell at night and removed in morning	Yes	Yes	Two ..	Yes ..	Nil
Mahenge ..	Each cell is provided with a covered pail	Yes	Yes	Two ..	Yes ..	Nil
Mikindani ..	A bucket in each cell	Yes	No ..	Two ..	Yes ..	Nil
Morogoro ..	Sanitary buckets ..	Yes	Yes, weekly entries	One and a mat, more if ordered by Medical Officer	Yes ..	(1) Mosquito-netting for kitchen; (2) Some special way of dealing with patients suffering from such diseases as dysentery and pulmonary tuberculosis; (3) Sunproof roof for the Office; and (4) Suitable accommodation for European prisoners.
Moshi ..	Two buckets for each cell	Yes	Yes	One blanket and one mat	Yes ..	Nil
Musoma ..	One bucket for urine and one for faeces in each cell	Yes	Yes	One ..	Yes ..	(a) As Medical Officer pointed out last year, it is essential that a prison hospital be constructed inside the gaol; (b) the absence of small wards is, or may be, a serious matter in the event of an infective disorder breaking out, and at least <i>two</i> small wards should be built to accommodate sick prisoners; (c) More latrine buckets and urine drums are required.
Mwanza ..	Sanitary buckets are supplied	Yes	Yes	One ..	Yes ..	Nil
Namanyere ..	Two sanitary buckets are placed in each cell for the use of inmates during the night	Yes	Yes	Two ..	Yes ..	Nil

## REPORT ON THE HEALTH OF PRISONERS FOR 1927—continued.

Name of Prison.	24	25	26	27	28	29
	What sanitary arrangements are there in the cells for use at night ?	Is drinking water provided for use at night ?	Is there a weight register and is it kept up to date ?	What number of blankets is provided for each prisoner ?	Is the clothing sufficient ?	Further remarks and suggestions.
Pangani .. Shinyanga ..	Pans .. .. and Latrine pans urine drums	Yes .. Buckets of water are kept in the wards at night	Yes .. No ..	One .. .. Two blankets and one mattress of coil rope	Yes .. Yes ..	Nil Nil
Singida ..	Accommodation is provided in the cell	Yes ..	No ..	Two .. ..	Yes ..	Nil
Songea ..	Latrine buckets, one in each cell	Yes ..	Yes ..	Two .. ..	Yes ..	Nil
Tabora ..	One latrine pan in each cell	Yes ..	Yes ..	One blanket, one sleeping mat, and one warm jacket	Yes ..	Nil
Tanga ..	Urine pail and one other sanitary pail in each cell	Yes ..	Yes ..	One blanket, one sleeping mat (two blankets for aged prisoners)	Yes ..	Nil
Tukuyu ..	Buckets in the wards	Yes ..	Yes ..	Two and a sleeping mat	Yes ..	(1) Up to October, 1927, "in-patient" prisoners were admitted to Tukuyu hospital, outside the prison. A detention ward was opened inside the prison on 1.10.27. (2) That a native hospital attendant be posted for duty in the prison hospital. (3) The vaccinations were performed on 14th February, 1927. The lymph was also used for vaccination in the district, and a large number of unsuccessful results were recorded.
Tunduru ..	One bucket .. ..	Yes ..	Yes ..	One during hot weather and two during cold	Yes ..	Nil
Utete ..	Latrine pans are placed at 6 p.m. for use at night	Yes ..	Yes ..	One blanket and one rope mat	Yes ..	No suggestion as new gaol building (stone) is nearly completed.

## MENTAL HOSPITALS.

## I.—LUTINDI.

	Males.	Females.	Total.
On the 1st January, 1927, there were in residence ... ..	44	31	75
Admitted during the year ... ..	10	5	15
Discharged during the year ... ..	2	—	2
Died during the year ... ..	5	2	7
Remaining on 31st December, 1927	47	34	81
Average daily number resident ...	47	32	79
Average length of stay—			
Of those discharged ... ..	1 yr. 4 mths.	Nil.	1 yr. 4 mths.
Of those who died ... ..	7 mths. 27 days.	1 yr. 5 mths.	2 yrs. 1 mth.
Of those remaining ... ..	6 yrs. 6 mths.	8 yrs. 4 mths.	14 yrs. 10 mths.

*Admissions.*—The total admitted during the year was 15, of whom two had previously been inmates.

*Discharges.*—The total discharged during the year was two, and these were both regarded as recoveries.

*Deaths.*—There were seven deaths during the year, this being the same number as in 1926.

The causes were as follows :—

- 2 Exhaustion following prolonged excitement, restlessness.
- 1 Heart Disease.
- 1 Cerebral Seizure.
- 1 Senile Decay.
- 1 Paralysis.
- 1 Intestinal Complications.

*Health.*—The general health of the patients was satisfactory. No epidemics occurred during the year.

Seclusion was resorted to upon seven occasions, viz., for three males and four females who were suffering from acute excitement. Two years have passed since it was considered advisable to subject inmates to artificial restraint.

An average of 27 patients were daily employed on agriculture, gardening and native industries, and an average of 19 on household work, water-drawing, etc.

*Visitors.*—The District Officer, Lushoto. The Assistant District Officer, Korogwe. The Medical Officer, Lushoto.

*Occupation.*—The patients whose health permit are given exercise twice daily. Those who are able to do so are encouraged to play football ; band music is provided. A daily service is held at the Mission Church at which patients are allowed to be present, the average number attending being about 25.

A total of 2,067 out-patients suffering from various diseases were treated at the Asylum Dispensary.

## II.—DODOMA.

The criminal block of this Institution has been completed, and an average number of nine female lunatics, hitherto interned at Dodoma prison, have been in occupation of this section since March. The position as regards other buildings is :—

- (1) Sleeping quarters to accommodate 18 male civil lunatics, practically completed.
- (2) Sleeping quarters for 10 female civil lunatics, built up to floor level.
- (3) Superintendent's offices, completed.
- (4) Europeans' kitchen, completed.
- (5) Asiatics' kitchen, completed.
- (6) Superintendent's quarters completed.



Food is brought to the patients in the criminal block from the prison.

By next May it is probable that the buildings will be far enough advanced for the Medical Department to take over all responsibilities in connection with the care and maintenance of the Mental Hospital and its inmates from the Prison Authorities.

### VIII.—RAINFALL.

#### TOTAL RAINFALL IN MILLIMETRES BY STATIONS, 1927.

Districts.	Stations.								Feet above sea- level.	Rainfall in millimetres.
CENTRAL LINE AREA :										
Dar-es-Salaam	..	..	..	Dar-es-Salaam	..	..	..	S.L.	1,188·0	
Morogoro	..	..	..	Morogoro	..	..	..	1,628	827·1	
				Kilosa	..	..	..	1,606	996·2	
Dodoma	..	..	..	Dodoma	..	..	..	3,693	531·9	
				Manyoni	..	..	..	4,135	772·6	
				Singida	..	..	..	5,233	505·1	
				Mpwapwa	..	..	..	3,000	941·7	
Tabora ..	..	..	..	Tabora	..	..	..	4,000	817·4	
				Kahama	..	..	..	4,055	848·7	
				Nzega	..	..	..	—	619·1	
Kigoma	..	..	..	Kigoma	..	..	..	2,531	1,005·7	
				Kasulo	..	..	..	4,530	1,141·4	
				Kibondo	..	..	..	4,981	1,289·3	
COASTAL AREA, SOUTH :										
Lindi ..	..	..	..	Lindi	..	..	..	S.L.	1,058·4	
				Tunduru	..	..	..	2,300	724·5	
				Masasi	..	..	..	1,505	718·6	
				Mikindani	..	..	..	S.L.	473·0	
Mafia Island	..	..	..	Kilindoni	..	..	..	63	1,982·3	
Kilwa ..	..	..	..	Kilwa	..	..	..	S.L.	703·0	
				Liwale	..	..	..	1,500	934·0	
				Kibata	..	..	..	1,700	1,100·6	
Rufiji ..	..	..	..	Utete	..	..	..	327	743·4	
COASTAL AREA, NORTH :										
Pangani	..	..	..	Pangani	..	..	..	S.L.	1,463·9	
Tanga ..	..	..	..	Amani	..	..	..	3,004	2,486·1	
NORTHERN HINTERLAND :										
Moshi ..	..	..	..	Moshi	..	..	..	2,649	625·1	
Arusha ..	..	..	..	Arusha	..	..	..	4,416	1,095·3	
				Mbulu	..	..	..	5,900	836·2	
Mwanza	..	..	..	Mwanza	..	..	..	3,709	841·9	
				Musoma	..	..	..	3,709	774·9	
Bukoba	..	..	..	Bukoba	..	..	..	3,709	1,842·7	
				Biharamulo	..	..	..	4,350	582·8	
Usambara	..	..	..	Lushoto	..	..	..	4,579	1,210·4	
Kondoa-Irangi	..	..	..	Kondoa-Irangi	..	..	..	4,610	532·5	
				Mkalama	..	..	..	4,235	554·7	
SOUTHERN HINTERLAND :										
Songea ..	..	..	..	Songea	..	..	..	3,826	1,230·2	
				Milo ..	..	..	..	8,300	1,695·5	
Iringa ..	..	..	..	Iringa	..	..	..	5,365	922·9	
				Njombe	..	..	..	—	854·0	
Rungwe	..	..	..	Tukuyu	..	..	..	5,069	2,102·9	
				Mbeya	..	..	..	—	1,071·3	
Ufipa ..	..	..	..	Namanyere	..	..	..	5,100	617·7	

## IX.—SCIENTIFIC.

A REPORT ON HUMAN TRYPANOSOMIASIS IN TANGANYIKA TERRITORY FOR THE YEAR ENDING 31ST DECEMBER, 1927. By DR. G. MACLEAN, M.B., CH.B. (GLAS.), D.T.M. (LIV.), SLEEPING SICKNESS OFFICER.

The infected regions of the Territory are still divided into five separate areas, namely :—

- (1) The Maswa-Ikoma area ; Mwanza Province.
- (2) The Tanganyika Lake Shore area ; Kigoma Province.
- (3) The Ufipa-Tabora area ; partly in Kigoma and partly in Tabora Province.
- (4) The Liwale area, Lindi Province.
- (5) The Rovuma area, partly in Lindi and partly in Mahenge Province.

During the year the only serious spread occurred in the Ufipa-Tabora area, where the disease seems to be making insidious progress northwards.

## II.—CASES.

The following table shows the new cases and deaths recorded in the different Provinces during the year :—

Province.								New cases during 1927.	Deaths during 1927.	Deaths during 1926 but not recorded till 1927.
MWANZA	..	..	..	..	..	..	..	120	65	3
TABORA	..	..	..	..	..	..	..	109	15	4
KIGOMA :										
Tanganyika Lake shore	..	..	..	..	..	..	..	9	—	—
Ufipa	..	..	..	..	..	..	..	62	39	15
LINDI	..	..	..	..	..	..	..	60	29	—
TOTAL								360	148	22

## III.—RESERVOIRS OF THE DISEASE AND MODES OF SPREAD.

It may be generally stated that with the possible exception of Southern Ufipa all the available evidence points to a man-fly-man spread, and that even in Ufipa it is not necessary to assume the existence of a vertebrate host other than man. On the other hand, it is not suggested that non-human vertebrate hosts have been excluded, or that they may not be an active epidemiological factor.

It is impossible to give full details here but the following examples may be quoted :—

(a) In Northern Tabora, where an outbreak is now being studied in the acute stage, there is a history of a woman returning ill from a long visit to her home in Msongwa. Later, her husband and his second wife became ill and all three died. Subsequently, in this little forest settlement of about 20 to 30 families, one by one the people took ill and died, till a panic stage was reached, when sick and healthy left their homes and scattered to various parts. A few miles away, at Ifumba, a similar scene was being enacted at the same time.

The settlements of Nguruwe's, Isole and Kitage are only a few miles from Msongwa and Ifumba, and the people are constantly coming into touch with one another. These settlements are now experiencing the same fate as the other two.

Out of about 40 known cases in this area there was not a single one who did not come within infective range of another case.

The settlements consist of a number of tiny villages of one or more houses, set in a few acres of clearing in the midst of tsetse forest.

(b) In Southern Tabora, where the disease seems settling down to an endemic phase, one of the recognised sources of infection is the Ugalla River. Here fishermen with their families and assistants congregate in fly-infested camps on the banks for the greater part of the dry season—June to November. It happens that these fishing places are quite near the dry-season haunts of such species of game as have been marked down from time to time as potential reservoirs of *T. rhodesianse*. The concentrations of game break up about the time of the departure of the fishermen, the movements of fly probably corresponding, roughly, with those of the game.

(c) In Southern Ufipa the situation is remarkable for the close association of waterbuck with human habitations. At the Rungwa settlement, which comprises cleared area of about 13 square miles with a population of about 4,500, this antelope is found in large numbers, practically the whole year round, in the surrounding forest and sometimes within the clearing.

The Medical Officer, Dr. Buchanan, examined the blood of 33 waterbuck. Of these, 18 had trypanosomes, and of the 18 at least 8 showed the morphological characters of *T. brucei*. Sub-inoculations were not made (other game animals were also examined). Waterbuck is specially mentioned because it was easily the commonest and most heavily infected. People appear to get infected by going no farther afield than the forest surrounding the settlement, but whether the reservoir is human or animal it is at present impossible to say.

(d) In Liwale, Dr. Dye has collected evidence that suggests man-fly-man infection (see Transactions of the Royal Society of Tropical Medicine and Hygiene).

Evidence to distinguish between direct and biological transmission has not been forthcoming.

#### IV.—THE GENERAL SLEEPING SICKNESS POLICY.

This was, for the most part, embodied in a Memorandum dated 22nd August, 1927. As the general principles of this Memorandum have been approved its text is given here in full :—

“ A.—The Sleeping Sickness areas of the Territory should, for the purposes of following a general policy, be divided into two categories, viz. :—

“ (a) Areas which it is proposed to develop and,

“ (b) Areas which it is not proposed to develop.

“ In areas under (a) every encouragement should be given to the natives to develop the resources of their land along lines which will involve the minimum of contact between man and tsetse.

“ Forest dwellers who do any agriculture are, and always have been, engaged on forest reclamation. Such reclamation, when done in the proper locality, benefits the country as a whole and, locally, may benefit a community who has taken little or no part in the clearing operations. (This is clearly seen in parts of Tabora where the Watusi, a cattle rearing tribe, have joined the Wanyamwezi in a country which the latter cleared within the last generation or two.)

“ For this reason I submit that the principle of reduced tax, or other comparable compensation, in all Sleeping Sickness areas which it is proposed to develop, should be considered.

“ Wherever possible, reclamation should take place at the forest edge with open country as a base. When, for any reason—*e.g.*, tribal boundaries, presence of rich arable



land at old sites, etc.—this is not practicable, the clearings may have to be made in the forest. Generally speaking, no clearing should be made that does not accommodate and support at least 500 people. After clearings are established, the larger the community the easier it will be to combat Sleeping Sickness.

“ Where a community is separated from its main market by tsetse forest all importing and exporting should be done as far as possible by mechanical transport.

“ Labourers for the maintenance of the roads could be drawn from Sleeping Sickness communities. A medical officer would inspect these periodically so as to ensure early treatment of any cases that might get infected.

“ Where the distance to the market makes transport too expensive, expert advice should be sought to ascertain whether extracts from the produce could be made marketable (*e.g.*, I understand that the Director of Agriculture approves of extracting oil from ground nuts and exporting the oil).

“ Expert agricultural advice should also be available for the people in the matter of the best crops to grow, and such seeds as would be required provided.

“ In choosing crops the biological value of the different foodstuffs would have to be borne in mind.

“ A safe honey and wax industry should be encouraged by introducing artificial hives into settlements and so wean the people from the old practice of collecting wild honey and wax in the forest.

“ Gardens should be protected from game. There is some difference of opinion as to the best method to achieve this. I understand the view of the Director of Game Preservation to be that this should be done by supervised native hunters, paid by the Government, and with this view I agree.

“ Another view is that the natives concerned are the best people to protect their own crops. The aims should be—(*a*) to prevent destruction of crops by game, and (*b*) to convert a people with marked hunting proclivities into an agricultural community, and so long as these ends are attained perhaps it matters little what methods are adopted.

“ Where the community concerned consists of fishermen, the fishing grounds should, as far as possible, be within the settlement. Unfortunately this is not often practicable, and the most that can be done is to have a nominal roll of fishermen and their attendants and have them periodically inspected. Only when the situation is very serious should fishing be prohibited.

“ To sum up, when once it is decided to develop a Sleeping Sickness area every assistance should be given to the people to make the area an economic success. All its labour resources should be utilised toward that end and any tendency for the labour to be utilised elsewhere should be actively discouraged.

“ B.—Areas which it is not proposed to develop.

“ There are three ways of dealing with these :—

- (*a*) Allow Nature to take its course till the disease either dies out or becomes mildly endemic. The most valid objection to this is that the place may become a source of infection for important areas.
- (*b*) Treat as many cases as possible and pay periodic visits of inspection. Over a large area this course is not practicable with the present staff.
- (*c*) Remove the people to a locality that is to be developed. This, I consider, is the course that should be followed whenever ethnological and economic factors allow.”

*Quarantine.*—In practice the carrying out of quarantine regulations largely devolves on the Administrative Department and the Native Authorities.

It would seem then that they are the competent authorities to state what regulation can and what cannot be enforced. On the other hand, it is for this Department to inform them what regulations, if carried out, would give the best results. It is very probable that regulations that are impracticable in one district are, because of local conditions, quite feasible in another, I should therefore suggest that the following rules be adhered to in recommending any quarantine regulation.

Sleeping Sickness areas should be classified as :

(A) Dangerous ; (B) infected but not dangerous.

(A) In dangerous areas there should be strict quarantine with or without free movement within the area.

Strict quarantine without free movement within the area means that no person would be allowed to enter or leave any sultanate within the area without permission from the Administrative or Medical Authorities (or if the Administration considers it a more effective arrangement, without the permission of the Native authorities).

Strict quarantine with free movement within the area means that any person within the area will be allowed free movement from sultanate to sultanate, but that no person enters or leaves the area without permission.

(B) In areas infected but not dangerous there should be partial quarantine.

Partial quarantine means that no restriction would be placed on the movements of natives except the following :—

- (a) Fishermen and their attendants who carry on their occupations within a fly belt should all be enrolled, and periodically inspected by a Medical Officer.
- (b) The people should not be allowed to be employed outside their own area.
- (c) The people would have to undertake forest reclamation under Government direction.

When an area was found to be infected the Director of Medical and Sanitary Services would decide into what category it should be placed for the purposes of quarantine. Recommendations would then be made to the Provincial Commissioner, who would be asked to state to what extent he would be able to carry them out.

*Labour Routes of the Territory.*—The Labour Commissioner should be asked to state what are the essential routes and whether any particular routes can be popularised. Such essential routes as pass through fly-infested country should have the inhabitants living within three or four miles of them examined periodically. A special look-out should be kept for cases at labour camps supplied by these routes, and a dresser with experience of Sleeping Sickness should be stationed at each of these camps.

Should Sleeping Sickness be found along these routes they would have to be classified as (a) dangerous, or (b) infected but not dangerous, and recommendations made in accordance with the general policy laid down for Sleeping Sickness areas. The Labour Commissioner, in conjunction with the Provincial Commissioners concerned, should be asked to state what restrictions were practicable.

*Labour on Plantations.*—Should Sleeping Sickness break out on any plantation, prophylactic measures on general lines should be adopted. A Medical Officer with experience of the disease should make an inspection and make recommendations suitable to the particular plantation concerned.

With regard to the practical application of these principles there are certain details that may now be considered.



*Selection of Areas to be Developed.*—The selection of these areas should not be postponed until we are faced with a pressing problem and, possibly, driven to makeshift methods. It is comparatively easy to collect the necessary information, for a provisional selection must be largely agricultural; the Medical Department cannot move in the matter until it either has sufficient agricultural advisers of its own, or until the Agricultural Department can supply the necessary information.

I should urge that the matter be taken up in the proper quarter, and should suggest that a systematic survey might begin with the land along the Central Railway for a depth of about 50 or 60 miles on either side in the provinces of Kigoma and Tabora.

*Reclamation versus Forestry.*—Whether anti-tsetse measures are compatible with the preservation of forests of commercial value is a question on which there is no clear information. On the other hand, it should be noted that reclamation does not necessarily mean—and, when extensive, should not mean—denuding the land of all trees. In large clearings, particular species of trees which are of special value to the local inhabitants are now being left untouched. Whole blocks of forest can also be sometimes left in “reclaimed” areas.

In Tabora, arrangements have been made with the Conservator of Forests to observe the effects of non-burning over a period of years on the tsetse population in one of the forest reserves.

*Reduction or Remission of Tax.*—While the arrangement of details of taxation comes naturally within the province of the Administrative Department, there is one principle which it would be well to insist on in a community where Sleeping Sickness is being combated. The principle suggested is that such a community be taxed only when the tax-money can be obtained from agricultural resources, or failing these, when the incidence of the disease is not higher than seven per thousand per annum.

*Quarantine.*—(A) Kigoma Province: The recommendations put forward by the Provincial Commissioner, if approved, should meet the situation.

(B) Tabora Province: As soon as the situation in Northern Tabora is more clearly defined, specific recommendations will be put forward.

(C) Mwanza and Lindi Provinces: No modification of the present arrangements are being proposed at present. The position will be studied in the two Provinces during the coming year to see whether any modifications are desirable.

#### V.—TREATMENT.

An analysis of the results of treatment of the 1924 and 1925 cases will form the subject of a later report.

The general results obtained are as follows:—

1. *Rhodesian Cases.* A.—Bayer 205 alone does fairly well in early cases and in cases whose general symptoms are chronic or slight. Probably the best prognostic criterion is the condition of the cerebro-spinal fluid after a course of treatment.

A cell count of 30 or less per cmm. appears to be a good prognostic sign, and an indication that treatment may cease. The following are examples:—

Of a series (Dr. Keevill's) of 12 (1925) cases whose C.S.F. was 30 cmm. or less after treatment, 10 were reported alive and well at the end of 1927. The two deceased died from diarrhoea without any suspicion of a Sleeping Sickness relapse.

Of a series of 15 (1924 and early 1925) cases—unselected except for very advanced cases who did not complete treatment—5 were alive at end of 1927. All these deceased were known or suspicious relapses. Six of them received treatment (Bayer, Fournau, Tryparsamide) after their relapse, with only temporary benefit.



The first series had an average of 4·2 grms. in 1 grm. doses ; the second series had an average of 3·5 grms. in average doses of 1·2 grms.

Dr. Keevill reports one case who had trypanosomes in his C.S.F. in 1925, and who had nothing but Bayer treatment before or since. He was fit, with normal C.S.F., at the end of 1927. (Last L.P. 18th January, 1928.)

This case, even if it does not prove a permanent cure, is interesting in that it suggests a reaction of the central nervous system to this drug.

The results of prolonged Bayer treatment have still to be studied.

B.—Fourneau 309 has been used in a very limited number of cases. The results appear to be the same as Bayer 205.

C.—Tryparsamide alone, though it has given good results in a few cases (one 1924 case and one 1925 are still alive), the general verdict is unsatisfactory—see last year's Annual Report, Appendix I, section (2).

D.—Combined Bayer and Tryparsamide treatment is now on trial, and the results hitherto obtained suggest that, provided the treatment is commenced with Bayer, the combination is more effective, in the average case, than either drug singly.

Examples :—

In a series of 11 unselected (1925) cases, 8 were alive at the end of 1927.

These received an average of 3 grms. Bayer, and 29 grms. Tryparsamide each, except two children, who received appropriately smaller doses. The average duration of treatment was 264 days, all finishing not later than August, 1926.

In another series of four cases, three were alive at the end of 1927, these received an average of 2·2 grms. of Bayer and 32·4 Tryparsamide.

*Relapses.*—Until authentic cases of re-infection are studied, it is obvious that such cases may be confused with relapses where opportunities for re-infection exist. In the following notes it is simply assumed that relapses and not re-infections are being dealt with.

Relapses usually occur within a year of completing a course of treatment, the average probably being about eight or nine months, and the earliest about two or three months.

The following case appears to be exceptional. The patient, an oldish woman, completed her course of treatment (3·9 grms. Bayer) on 29th December, 1924. She was lost sight of during 1925 and the first part of 1926 but was reported by friends to be fit. She was seen on 11th July, 1926, when her blood was negative and her general health good. She was given 1 grm. Bayer that day (reason not recorded). On 16th April, 1927, she was reported by a dresser to be quite fit, but a blood film showed a few trypanosomes. She was reported to have died in May, 1927, but final symptoms unknown. ("Relapse" is used above to indicate both clinical relapse with or without parasites in the peripheral circulation and also infection of the blood or C.S.F. without symptoms.)

2. *Gambiense Cases.*—Owing to the erratic manner in which most of these cases turned up for treatment it is impossible to record, this year, any observations that would be of value.

## VI.—THE SITUATION IN THE DIFFERENT AREAS.

1. *The Maswa-Ikoma Area.*—The extent of country known to be infected was considerably increased during the year, cases having been found at Ushashi (A3 H15) and Iramba (Lat. 1° 40' long. 34° 20'). This may be a genuine spread, but is more likely the result of a gradual unveiling of the situation.

B.—The following is a table of cases reported to this office during the different months. They were generally diagnosed the month before, and were probably taken ill two or three months earlier :—

Month.					District.	
					Maswa.	Musoma.
January	...	...	...	...	14	4
February	...	...	...	...	5	5
March	...	...	...	...	5	3
April	...	...	...	...	2	2
May	...	...	...	...	4	3
June	...	...	...	...	3	4
July	...	...	...	...	5	3
August	...	...	...	...	4	4
September	...	...	...	...	5	7
October	...	...	...	...	1	7
November	...	...	...	...	6	9
December	...	...	...	...	11	4
Total					65	55

C.—Reconstruction Measures :—

- (a) North of the Duma River.—As a result of clearing made within the last two years (about nine square miles) about 1,500 acres of valuable arable land has been released for cultivation and settlement ; and the section of the Duma River and its Northern tributaries from Susuma (B3 D2b) to its junction with the Ssimiyu has been opened for fishing.
- (b) South of the Duma.—A few hundred acres have been cleared and released for cultivation to the West of the Mawere River (B3 D3d).
- (c) The Ssimiyu River.—Arrangements are in course of being made between the Game, Veterinary, Administrative and Medical Departments for a combined reclamation and re-settlement programme, the intentions being, to increase grazing and water supply for cattle, to make fishing safe on the river, and to provide safe outlets for the increasing population on the West.

D.—Work of the International Commission. Professor Kleine was stationed at Ikoma for a considerable part of the year, and Dr. Corson, of this Territory, was associated with him in his work during most of the time. Professor Kleine's Report is not yet available.

2. *The Tanganyika Lake Shore Area.*—The general situation has remained unchanged during the year.

B.—The following is a table of cases reported each month :—

January	...	...	...	...	...	—
February	...	...	...	...	...	1
March	...	...	...	...	...	2
April	...	...	...	...	...	—
May	...	...	...	...	...	1
June	...	...	...	...	...	—
July	...	...	...	...	...	2
August	...	...	...	...	...	—
September	...	...	...	...	...	—
October	...	...	...	...	...	—
November	...	...	...	...	...	—
December	...	...	...	...	...	3
Total						9

## C.—Anti-tsetse Measures :—

- (a) The clearings round the main villages on the Ufipa part of the Lake-shore were maintained.
- (b) A clearing was made along the streams between the Anglo-Belgian Boundary (C1 B11) and the Nsasse River (C1 B15)—a shore length of about eight miles. In all 11 streams, including the Nsasse itself, were cleared for a width of at least 50 yards on either side.

3. *The Ufipa-Tabora Area.*—A new outbreak—probably a spread from known foci, though this has not been established—was discovered about 40 miles North-West of Tabora towards the end of the year. The disease must have established itself at least as early as 1926, and probably did so before then. So far it has not been found outside Urambo (C3 E) and Unyambewa (in Nzega—C3—B and F), places occupied by one tribe, the Wasagari; but there is no reason to suppose that it will confine itself to its present known limits or to the one tribe.

The outbreak is serious in that it strikes at an important labour supply area, and may also, quite well, form a centre of dissemination into Kahama, Kibondo and Biharamulo.

The only measure carried out so far is treatment of patients. A camp has been opened at Urambo and another will shortly be opened at Unyambewa, and if necessary, at Ushetu.

A re-settlement scheme will be put forward as soon as the necessary Agricultural information is available.

In the old area South of the Central Railway the policy of evacuation and resettlement is being continued. In Tabora all the country South of the Usoke-Kalula Road and West of a line joining Kalula and Western Iswangala is now evacuated. In Ufipa, with the exception of Gongwe, small portions of Usenga, Utende Ukamba and Shama, and the concentrations, all the country between Manga and Rungwa on the South to the Tabora border on the North, and between Western Ukimbu on the East to Ugue on the West is now evacuated, a few villages being maintained on essential lines of communication with Tabora.

Altogether 10,000 to 12,000 square miles have been evacuated in the Ufipa-Tabora area since the middle of 1925. It is hoped that the evacuation of Usenga, Utende, Ukamba and Shama will be completed in 1928. The evacuation of Gongwe depends on the formation of a new Kimbu District.

B.—Concentrations. Two concentrations begun in 1926, viz., Manga-Usevya and Kaliuwa, were completed during the year. The following is the present position with regard to extent and population :—

Settlement.	Estimated area.		Estimated population.	
	1926.	1927.	1926.	1927.
	Square miles.	Square miles.		
Rungwa .. .. .	13	13	5,000	4,500
*Nyonga .. .. .	9	10·11	2,326	4,659
†Ilunde .. .. .	10	6½	2,000	1,663
Urwira .. .. .	10	10	2,884	2,800
*Manga-Usevya .. .. .	9	11	200	2,000
‡Mamba .. .. .	3	3	100	100
Usoke.. .. .	9	9	1,400	1,400
Kalula .. .. .	6½	6½	600	600
Morogoro .. .. .	2	2	280	280
*Kaliuwa .. .. .	3	3	—	900

\* More people were moved into these concentrations in 1927.

† The 1926 figures for Ilunde appear to have an over-estimate.

‡ This is not a true concentration, but a clearing round part-existing villages.



The differences between 1926 and 1927 populations do not necessarily indicate fluctuations. They are at best imperfect statistics, though the 1927 ones are probably more accurate.

C.—Fly Barriers. There is a certain amount of evidence that *G. morsitans* has been extending its range southwards at the foot of the Ufipa Escarpment for years.

Attention was first drawn to this by Dr. Wilson in 1925. Dr. Buchanan investigated the situation more fully in 1926 and commenced the cutting of a fly barrier. This year (1927) the barrier was completed and Dr. Buchanan reported as follows :

“ The clearing of the Kilambwa-Yindo fly barrier has been completed and five Ufipa villages will cultivate the area. The belt is 1,100 yards broad and the trees have been ring-barked in a further 200 yards to the North, but while this may be sufficient protection at the moment the possible extension of the barrier should be borne in mind. After clearing work had been finished the whole area was surrounded by a fire-break and the burning was postponed till October ; the result of this was a very complete destruction of the felled timber which rendered the work of preparing the ground for gardens very much easier.”

D.—Table of Cases.

Month.	District.		
	Ufipa.	Tabora.	Nzega.
January .. .. .	7	10	—
February .. .. .	5	7	—
March .. .. .	5	10	—
April .. .. .	10	6	—
May .. .. .	1	2	—
June .. .. .	7	4	—
July .. .. .	2	3	—
August .. .. .	5	1	—
September .. .. .	6	10	—
October .. .. .	3	4	—
November .. .. .	8	5	—
December .. .. .	3	40	7
TOTAL .. .. .	62	102	7

E.—The effects of the policy of Evacuation and Re-settlement. Owing to the fact that Sleeping Sickness, like other diseases, may, at times, without treatment or control, reach a “ saturation point ” in a community, after which the incidence may fall, it is difficult to gauge accurately the result of settling people in large clearings. The fact remains that in such clearings one does not see the panic, the abandoning of villages, and the dispersal of people and the dissemination of disease which was the normal state of affairs in the infected parts of Ufipa for years, and in Tabora and Mwanza on a lesser scale.

While one hesitates to state yet that the policy is of proved value, there is, in fact, nothing but encouragement to be derived from the results observed up to the present.

On the economic side there are certain difficulties. The disadvantages of having colonies of people far from a market are, of course, obvious, and it should be equally obvious that concentrations do not accentuate these disadvantages.

The real difficulty to be faced is the weaning of the native from his present system of cultivation and the introduction of one by which he can conserve the fertility of his soil indefinitely, so that settlements become permanent. Once this is achieved—and I understand from agriculturalists that it is quite feasible—one of our most important difficulties in dealing with the tsetse problem will have been removed.

4. *Liwale Area*.—The most interesting point in connection with this Area was a recrudescence of the incidence of the disease in two circumscribed regions which were well known to the Medical Officer, Dr. Dye.

In one of the regions (Muhungu Village) the outbreak followed, after an interval of about two months, on the relapse of two treated cases. The inference is—and in view of similar instances elsewhere it can hardly be a coincidence—that infection arose from the relapsed cases. The evidence, in fact, suggests direct transmission, though in view of the probability that the range of the biologically infected fly is normally about as limited as that of the infected human, cyclical transmission cannot be excluded.

Case No. 236 adds one more to the number of ambulant cases—a class who probably play an important part in the spread of the disease.

For fuller details, see Dr. Dye's paper in the *Transactions of the Royal Society of Tropical Medicine and Hygiene*.

B.—Table of Cases :—

January	...	...	...	...	...	...	...	—
February	...	...	...	...	...	...	...	4
March	...	...	...	...	...	...	...	18
April ...	...	...	...	...	...	...	...	3
May ...	...	...	...	...	...	...	...	13
June ...	...	...	...	...	...	...	...	4
July ...	...	...	...	...	...	...	...	8
August	...	...	...	...	...	...	...	3
September	...	...	...	...	...	...	...	1
October	...	...	...	...	...	...	...	1
November	...	...	...	...	...	...	...	2
December	...	...	...	...	...	...	...	3
Total								60

C.—Preventive Measures. The general policy followed is the segregation and treatment of all infected cases and the clearing of scrub round villages, particularly infected villages, so as to make them fly-free.

5. *The Rovuma Area*.—No cases were reported from this Area during the year. There is, however, no reason to believe that the disease has died out, and had staff been available for a survey there is little doubt cases would have been found.

NOTES ON PHOTOGRAPHS OF SUBJECTS SUFFERING FROM YAWS. By DR. SHIRCORE.

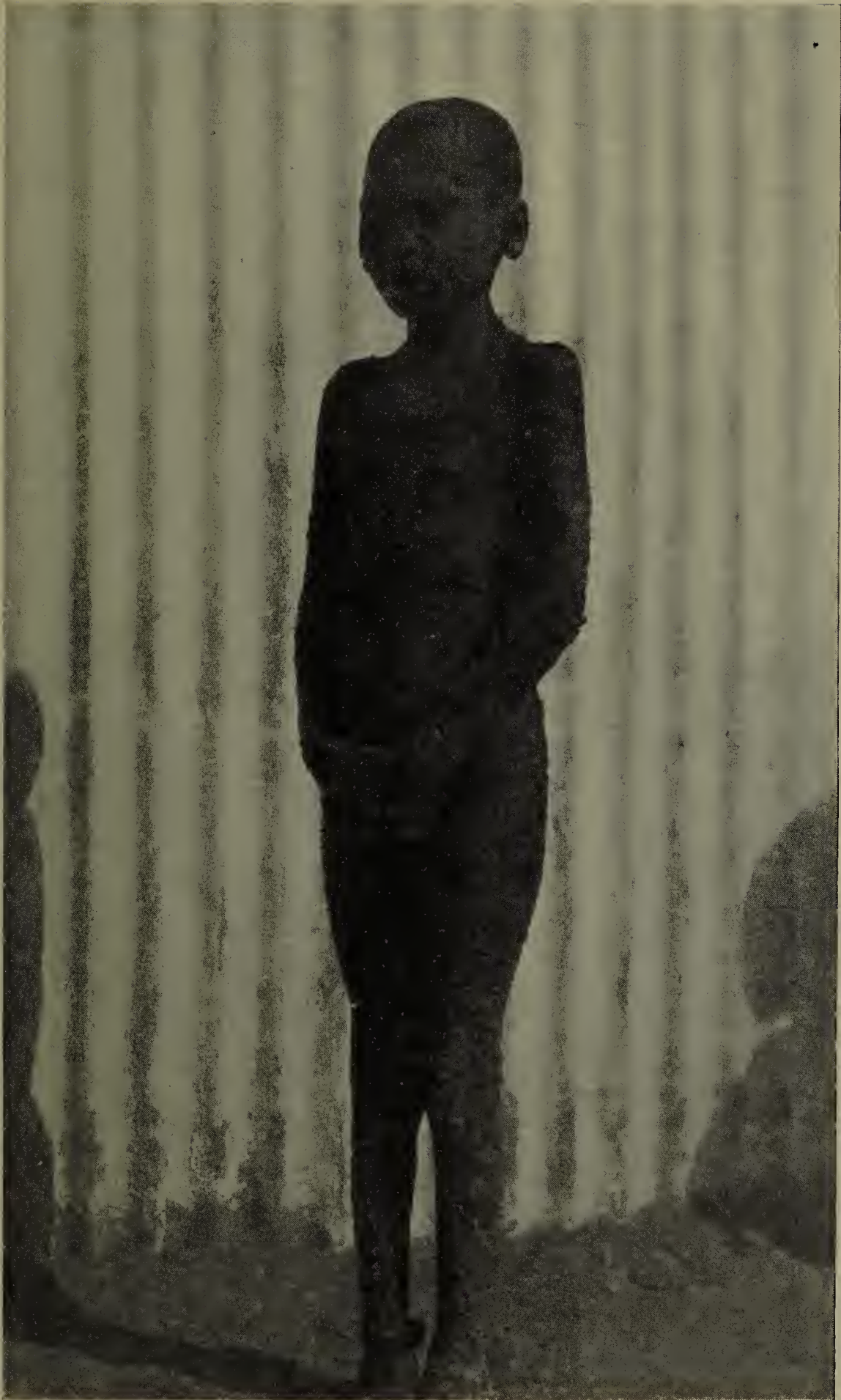
Yaws has been dealt with extensively during the last few years by several observers. The interest in these notes lies chiefly in the photographs.

Numbers 1, 2, 3 and 4 show a marked case of secondary eruption before and after treatment. The patient was seen by Dr. G. A. Williams, Medical Officer, Morogoro, on the 28th June, 1926, and received three intramuscular injections of Bismuth Sodium Tartrate between that date and the 13th July, 1926, on which date photographs Nos. 3 and 4 were taken.

No. 5.—Photograph of an old woman suffering from Tertiary Yaws of the left foot ; also shows Keratoderma Cribata over the left shoulder.

Nos. 6 and 7.—Photographs of a case of Goundou in a female native of the Bugufi sub-district of the Bukoba Province, showing also sabre-like tibioe. The photograph was taken by the late Senior Assistant Surgeon Kelkar.





No. 1.





No. 2.



No. 3.





No. 4.

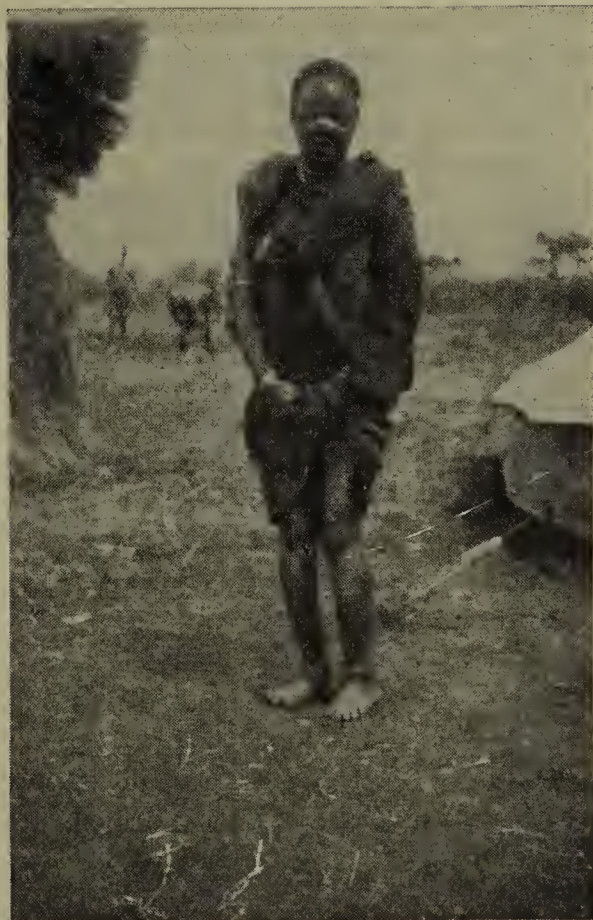




No. 5.



No. 6.



No. 7.

NOTES ON A CASE OF AMŒBIC PERICOLITIS. By DR. J. H. PARRY, B.A. (CANTAB.), M.R.C.S. (ENG.), L.R.C.P. (LOND.), MEDICAL OFFICER, EUROPEAN HOSPITAL, DAR-ES-SALAAM.

An elderly Dutchman employed by the Game Department, was sent down to Dar-es-Salaam with the following history.

Three weeks before admission he began to have pain in the region of the stomach : the pain increased in severity, especially during the last week, and he stated it felt like a heavy weight in the upper part of the stomach. He vomited up nearly everything he took, had lost much weight, and could not sleep for the everlasting pain.

*Previous History.*—Had a very bad attack of Dysentery two years ago in the Arusha district, which lasted two weeks, and a slight attack last August. There had been many attacks of Malaria, usually of a mild nature, otherwise no further illnesses.

*Condition on Admission.*—The patient was obviously emaciated and ill, and appeared to be relieved a little from the pain by keeping his knees bent. Pulse 84, temperature sub-normal. Examination of the abdomen revealed a large tumour filling up the epigastric region, and palpation showed that it extended from a line beginning at the tenth left costal cartilage in the nipple line, following a course downwards to 2 inches below the umbilicus, and then curving outwards and upwards to meet the tenth right costal cartilage. It was a fixed mass with definite outline, very tender and dull on percussion : the aorta could be felt pulsating through it. No free fluid in the flanks, no other abnormal physical signs. Examination of the stools revealed *Entamœba histolytica*. Blood negative for Malaria.

Patient vomited up frequently dark bile-stained fluid, which at times resembled coffee grounds. The symptoms and physical signs strongly pointed to a diagnosis of carcinoma with obstruction, but as amœbæ were present in the stools, and previous history of dysentery, it was decided to give Emetine a trial. By the end of the third day there was a decided improvement in the general condition after Emetine  $1\frac{1}{2}$  grs. had been given daily. The lump began to get smaller, softer and less painful, and by the eighth day there was hardly any swelling to be felt : the abdomen was soft, and no pain felt on deep palpation. He was able to take solid food without vomiting. He altogether had 12 grs. of Emetine, and was discharged from hospital in 15 days perfectly well. He was given Stovarsol to take after two weeks' interval.

The case is remarkable for the rapidity with which the lump in the abdomen disappeared, and the quick return to normal health under the influence of Emetine.

I have not been able to find this condition described at any length in the text-books, but I gather that it is brought about by the *Entamœba histolytica* penetrating the muscular coat of the large intestine and setting up a localised plastic peritonitis with resulting adhesions to the omentum and small intestines, and in this particular instance matting together to form the large lump in the Epigastric and umbilical regions.

NOTES ON A CASE OF *BACILLUS FÆCALIS ALKALIGENES* CAUSING CYSTITIS. By DR. J. H. PARRY, B.A. (CANTAB.), M.R.C.S. (ENG.), L.R.C.P. (LOND.), MEDICAL OFFICER, EUROPEAN HOSPITAL, DAR-ES-SALAAM.

A young married woman complained of pain and frequency of micturition coming on gradually for two days. The pain was of a burning character, especially towards the end of micturition, and frequency occurred about every half hour.

A catheter specimen was obtained and sent to the Laboratory, and the report stated : Pus and enormous numbers of Gram Negative bacilli, singly and in large masses and clumps, were present. She was given Hexamine 10 grs. every three hours. A certain degree of



improvement followed, but the condition did not clear up. After a week a further catheter specimen was taken, which still showed Pus and Gram Negative bacilli present. A culture was made from the catheter specimen and *B. fæcalis alkaligenes* was isolated; a vaccine was prepared, and improvement followed after the second injection, pain and frequency became less, and the condition completely cleared up after six injections. From the time that the first symptoms appeared to the first injection of vaccine was a little over three weeks. During this period Hexamine was almost continually being taken, but it was found that it only controlled the condition, and when the medicine was discontinued the frequency and pain rapidly returned.

After the second dose of vaccine, Hexamine was reduced to 10 grs. night and morning, for two days, and then discontinued altogether; the frequency and pain did not return to the same extent, but the condition of the bladder was by no means normal. The vaccine was given at five-day intervals, with gradually increasing doses specified by the Laboratory. The condition after six doses completely cleared up, undoubtedly due to the influence of the autogenous vaccine.

The literature on the subject mentions that *Bacillus fæcalis alkaligenes* has, in a few cases, been found in the urine, but apart from that no further information is available in the books at my disposal.

NOTES ON (a) NEO-KHARSIVAN IN BLACKWATER FEVER AND (b) SARCOMA OF THE UPPER GUM. By DR. A. McA. BLACKWOOD, M.B., CH.B. (GLAS.), MEDICAL OFFICER, DODOMA.

(a) *Neo-Kharsivan in Blackwater Fever*.—During the months of September and December two cases of Blackwater Fever were treated in the Hospital. One an Indian and the other a European. The features of the illness were very similar in both instances—a persistent resistant temperature and a tendency to relapse of Blackwater were similar and marked in both. The urine cleared and remained clear for several hours, and again became red. In the first case Neo-Kharsivan 0·3 was given intravenously on the twelfth day of the illness, and again on the fifteenth day, when the urine definitely remained clear, and the temperature never rose again above 99. The appetite improved, and the whole general condition altered for the better.

In the second case relapse took place on the fifth day, and a 0·3 Neo-Kharsivan was given intravenously that day. The effect was almost immediate in clearing the urine. The following day 0·3 Neo-Kharsivan was given again, and no further hæmolysis took place, the patient continuing to improve from then onwards.

(b) *Sarcoma of the Upper Gum*.—On the 17th of July a woman, aged about 40, came for treatment to the Hospital. A swelling about the size of a hen's egg, evidently arising from the upper gum and causing a marked bulging of the upper lip and pushing forward of the nose, was present. This swelling was removed, and the superior Maxillary bone scraped in the region of the tumour. A portion of the tumour was sent to the Laboratory, Dar-es-Salaam, and was microscopically diagnosed as a round-celled Sarcoma. The recovery was uneventful, and no report of a further recurrence has so far been received.

NOTES ON A CASE OF ACUTE ANTERIOR POLIOMYELITIS. By DR. F. R. LOCKHART, M.B., CH.B. (MANCH.), MEDICAL OFFICER, TABORA.

The patient was a robust male Indian, aged 40 years, a Railway Guard. On 29th September, 1927, he felt unwell, with vague pains in the legs, and fever, and the following morning, while dressing, became suddenly faint, fell to the ground and was unable to rise. He was admitted to hospital within two hours.

Upon admission he complained of headache and feverishness, pains and weakness of the legs. The temperature was 102° F. There was a lemon tint of the conjunctivæ, the



spleen was palpable, and there was a history of frequent mild attacks of "fever." Subtertian malarial parasites were present in the peripheral blood.

There was an extensor paralysis of both thighs and legs, and of the glutei. The patient could not extend the foot, but could just raise the leg from the bed. There was partial paralysis of the flexor muscles of the legs. There was marked tenderness of the affected muscles and slight hyperæsthesia of the skin.

The abdominal reflexes were very active. No knee jerks, ankle jerks or plantar response would be obtained. The pupil and other reflexes were normal. The Wasserman reaction was negative.

Quinine Hydrochloride 6 grs. was injected into the buttock once each on the first and second days, and thereafter quinine was administered orally in full doses for one week. The temperature returned to normal in four days.

During this period difficulty in defæcation and micturition became apparent, with a stubborn constipation which yielded to enemata, but not aperients, and distension with overflow of urine. The patient was catheterised for three days, and thereafter the bladder gradually returned to normal function. Enemata were administered for three months.

The muscular tenderness and hyperæsthesia persisted for one week. There was a patch of anæsthesia to all forms of sensation, except deep pressure over the area supplied by the right third sacral posterior root. No other sensory disturbance of any kind could be detected. The patient's perception of superficial and deep touch, pain, temperature and discrimination was normal. The muscle-joint sense was not impaired.

Much wasting and great flaccidity developed in all groups of muscles of the leg and thigh. The legs were about equally affected.

The condition gradually improved. In one month the foot and toes could be extended. In two months the knee-jerks were obtainable, and the patient could stand unaided and walk a few steps.

The degree of recovery was much the same in all the groups of muscles involved. No single group was markedly more affected or recovered less rapidly than any other.

Progress was maintained, and upon discharge in February, 1928, the patient could walk slowly for 400 yards without distress. The muscles, however, were still much wasted and flaccid. The patch of anæsthesia remained anæsthetic.

The lesion would appear to have been one of Anterior Nuclei or Anterior roots, with the addition of a single posterior root. The process involved bladder and rectum. The onset was acute. It was associated with the presence of malarial parasites, but it is not surprising that such a patient should show parasites upon the onset of any acute illness.

From Infantile Paralysis the case showed the following divergence :—

- (1) The uniform distribution of the paralyses over the muscles of leg, thigh and buttock, and the uniformity of recovery.
- (2) The association with a sensory nerve lesion.
- (3) The age of the patient, 40 years.

NOTES ON A CASE OF ANEURYSM OF THE ASCENDING AORTA. By DR. F. R. LOCKHART, M.B., CH.B. (MANCH.), MEDICAL OFFICER, TABORA.

The following case is of interest, not only on account of its special features, but in view of the comparatively few cases of aneurysm reported in natives.

The patient was a male, about 40 years of age. On admission he showed venous œdema of the face and neck, both arms, and the chest wall, back and front, to the level of the lower border of the sternum. The abdominal wall was unaffected, and the line of

demarcation was sharp and striking. There was great swelling of the pharynx, fauces, cheeks and soft palate, and deglutition was very difficult. There was a bullous condition of the conjunctivæ. The onset was stated to have occurred three months previously.

Percussion and auscultation were rendered ineffective by the œdematous tissue, which was about 1 inch in thickness, on the chest wall. Dyspnœa was slight, and the pulse was regular and full with a rate of about 80.

The patient was treated with 90 grs. of Pot. Iod. per diem. No improvement was apparent.

Sixteen days after admission he complained of the sudden onset of acute pain in the chest, and great dyspnœa. He died 28 hours later.

At post-mortem examination there was disclosed a fusiform aneurysm of the ascending aorta. At its widest the diameter was  $1\frac{3}{4}$  inches. On its inner aspect a saccular aneurysm, about 1 inch in diameter, was present, its walls formed of adventitia and surrounding tissues. It was apparently of recent origin, the walls being lined with partially organised blood-clot. Its left border lay against the pulmonary artery. Its entrance was a longitudinal split in the aorta about  $\frac{3}{4}$  inch long.

The mechanism of the signs and symptoms appears to have been :—

- (1) Pressure on the Superior Vena Cava by the original fusiform aneurysm, producing œdema of the upper part of the body.
- (2) Initial development or sudden increase in the size of the saccular aneurysm, producing pressure on the Pulmonary Artery and obstruction, leading to the dyspnœa and subsequent heart failure. It seems probable that the action of the Potassium Iodide precipitated this development.

NOTES ON A CASE OF MYOCARDITIS AND D.A.H. FOLLOWING MALARIA. By DR. F. R. LOCKHART, M.B., CH.B. (MANCH.), MEDICAL OFFICER, TABORA.

Patient: English, soldier, aged 35 years, married. He had served 16 years in the Army and Air Force; seven years in Africa and Mesopotamia. He had suffered from malaria on many occasions, but otherwise had enjoyed good health.

He was twice medically examined and passed fit for service in this Territory, once each on behalf of the Army authorities and the Colonial Office. He arrived in December, 1926. His general physique was good.

From 23rd February, 1927, to 1st March, 1927, he was under treatment in the Tabora hospital for fever, diagnosed as malarial, no parasites being found.

Until July his health remained fair. Upon close questioning it appeared that he suffered from occasional short attacks of fever, but he carried on his duties effectively, played games, etc.

On 6th July, 1927, he was again admitted to hospital, subtertian parasites being present in the peripheral blood. He did not present the signs of chronic malarial infection. The routine examination of the heart disclosed nothing abnormal. He was treated with 30 grs. of quinine daily in solution. The temperature fell to normal in three days and the case presented no irregular features. On 11th July, 1927, he was up and about and felt well.

On 12th July, 1927, he returned to duty, but after an hour standing at a desk he felt extremely faint and dizzy, and returned to bed. At examination the pulse rate was 120, every third or fourth systole was premature, the apex beat diffuse, heart dullness 1 inch outside the nipple line and a marked systolic murmur was present over the base



and mitral area. The patient presented no other signs of disease. The temperature was normal, no focus of sepsis could be found, and there was no history or sign of syphilis.

Sitting up in bed induced immediate faintness, and the least exertion breathlessness and a turbulent action of the heart which caused acute discomfort.

The condition slowly improved. After a month of complete rest premature systoles were about 1 in 20; heart dullness had contracted to the nipple line and the murmur was less marked although plainly audible. The heart remained very irritable. The entrance of a strange doctor into the room sent up the rate from 80 to 120, returning to 90 in about 20 minutes.

During the succeeding two months slow but steady progress was maintained, and on 17th October, 1927, the patient returned to duty. At this time occasional premature systoles occurred, but the heart was normal in size and no murmur was to be heard. He could walk briskly for a considerable distance without breathlessness or discomfort.

At the end of the year the heart presented no apparent abnormality and the patient was quite well in every respect. No relapse of malaria has occurred.

The striking feature of the case was the sudden and severe onset of the heart condition. This was much more than the myocarditis frequently associated with acute fevers and convalescence was correspondingly protracted. It is permissible to suspect that some infarction of cardiac arterioles may have occurred as occurs in the brain in cerebral malaria.

NOTES ON (a) PHOTOGRAPH ILLUSTRATING A METHOD OF DEALING WITH THE DENUDED PENIS AFTER ELEPHANTIASIS OPERATION; (b) CASE OF ADVANCED PULMONARY AND JOINT TUBERCULOSIS APPARENTLY CURED BY REMOVAL OF THE PRINCIPAL FOCUS OF INFECTION BY AMPUTATION; (c) A FEW OTHER INTERESTING CASES. By DR. W. K. CONNELL, F.R.C.S. (ENG.), M.B., CH.B. (GLAS.), MEDICAL OFFICER, SEWA HADJI HOSPITAL, DAR-ES-SALAAM.

(a) In my Annual Report for Songea for the year 1926, I fully described this little manoeuvre. It is merely an obvious application of a principle already well established in plastic surgery.

(b) The patient was an Indian, Abdul Hakim, aged about 35 years. In January, 1927, he noticed that his left knee was swollen, but the condition subsided to a large extent under treatment by external applications. Early in June, 1927, the swelling recurred and the joint was very painful. An incision was made, by a private practitioner, on the inner aspect of the joint and pus was evacuated from the joint. The wound did not, however, heal, and the patient reported at the Sewa Hadji Hospital on 28th July, 1927. He was then found to be very thin and anæmic. The left knee was much swollen, with a chronic sinus, about 3 inches long, on its inner aspect, leading into the joint, from which issued a seropurulent effusion. The left ankle was much swollen and oedematous. Movements in both joints were restricted in all directions. There was marked muscular wasting of the affected limb. Routine general examination of the patient revealed nothing in particular, except for marked emaciation and the presence of fine crepitations in the apices of both lungs. The sputum was examined and was found to be teeming with Tubercle Bacilli. Patient stated that he occasionally coughed up a little bright red blood.

Local treatment consisted for the most part of carbolic dressings, but on 30th July, 1927, the left ankle-joint was opened on the inner side, emptied of pus and sutured without drainage. Some pus was sent in a sterile tube to the Laboratory, and it was found to be sterile.

On 12th August, 1927, the sputum was again examined and was found to contain T.B.++. The arthrotomy wound in the left ankle had broken down and from both this and





Photograph illustrating a Method of dealing with the Denuded Penis after an operation for Elephantiasis of the Scrotum. See under "Notes" by Dr. W. K. Connell on page 148.

the knee joint much pus was constantly discharging. Patient was now running a typical hectic temperature, with profuse night-sweats, and he was wasting rapidly.

I first saw the case on 5th September, 1927, and I immediately suggested amputation. By this time sinuses were tracking in all directions, from both the knee and the ankle wounds, into the soft tissues. The left foot was in a state of Talipes Decubitus, and the left knee had passed into the "Triple Deformity" typical of pathological subluxation. The patient absolutely refused amputation, and I looked on his condition as hopeless.

On 2nd November, 1927, the patient suddenly decided to have his limb amputated after all. As he was now a living skeleton and in dreadful general condition, I refused. He persisted, however, in his demands for operation, and I finally agreed to meet his wishes, after warning him that there was a decided danger that he might die on the table.

Accordingly, on 7th November, 1927, I amputated the left limb just below the level of the Great Trochanter. The muscles were found to be pale and waxy—indeed, in a typical Amyloid condition, and they did not retract much on division.

Then the miracle happened. The amputation wound healed by first intention, except for a small sinus leading down to, I think, a silk ligature; and on the thirteenth day after operation, the patient's temperature (which had all this time been markedly hectic) came down to normal and never rose again, except on one day (10th January, 1928) when it suddenly shot up to  $102^{\circ}$ —probably owing to malaria. The patient rapidly gained in weight and strength, his cough completely disappeared, no abnormal signs could be detected in the lungs, and the sputum (examined microscopically on 4th December, 1927, 22nd December, 1927, and 11th January, 1928) was found to be negative for T.B.

During convalescence, cod liver oil and malt, cress and milk were freely administered, and the patient was kept as much as possible in the sun and fresh air.

On 21st January, 1928, as a distressed British subject, Abdul Hakim embarked for India. He was quite fat and cheerful and was, as far as I could see, completely cured.

(c).—(i) Carcinoma of breast in an aged African male. The growth was large, fixed and fungating. Patient died a few days after admission. Diagnosis microscopically confirmed by Dr. Corson.

(ii) Acute Lymphatic Leuchæmia in an old African woman. Fatal a few weeks after admission. Diagnosis confirmed both during life (by blood examination) and after death (by microscopical examination of sections from different tissues).

(iii) Two cases of severe, generalised tetanus which completely recovered under treatment by huge doses of anti-tetanic serum given intravenously. Neither case had had prophylactic serum.

A FEW NOTES ON INTRAVENOUS MEDICATION IN GONORRHŒA. By DR. L. A. WILLMOTT, M.R.C.S. (ENG.), L.R.C.P. (LOND.), MEDICAL OFFICER, BUKOBA.

*Mercurochrome*.—Results have not been encouraging in the few cases (12) treated.

1. In no case has there been the slightest curative effect unless a violent reaction has been produced, irrespective of dose.

2. An idiosyncrasy exists, the same dose producing varying effects in different patients.

3. Two cures have been obtained, one with a single dose of 10 c.c. of 10 per cent., the other with a single dose of 10 c.c. of 1 per cent. In both cases there was a volcanic reaction. Other cases receiving repeated doses of 15 c.c. of 1 per cent., but without reaction, have not benefited in the least.

4. It would seem that the tolerance of the patient must first be determined, and the dose pushed almost to the point of intolerance—a dangerous method.



5. The symptoms of such a dose are rise of temperature, rapid pulse, diarrhoea with pink stools, acute abdominal pain, rapid stomatitis, and general collapse.

6. In contrast to its effects in this disease, one injection of 10 c.c. of 1 per cent. was sufficient to cure an initial attack of Tick Fever in 48 hours, producing no reaction whatever.

7. The drug was also used in a case of pneumococcal meningitis. The injections produced no reaction, and had no effect in checking the disease. The C.S.F. became more purulent every day, and death ensued.

*Calcium Chloride* has been employed with greater success. An improvement has always occurred, in some cases after the complete failure of Mercurochrome.

1. Technique has been to give a preliminary dose of 10 c.c. of 5 per cent. solution, and if no untoward symptoms arose to give three weekly doses of 10 per cent. solution, followed by four similar injections at intervals of 48 hours.

2. It was noticed that the calcium chloride solution in hot distilled water invariably deposited a slight flocculent precipitate after a few minutes. The original solution is therefore allowed to stand for 10 minutes filtered, and the filtrate re-boiled.

3. An improvement is invariably reported after the first injection, and is usually maintained. Our experience has been that this usually falls short of an absolute cure. One case of gleet, however, of 10 years' standing, undoubtedly obtained a complete clinical cure.

4. During the injection burning and tingling sensations are produced variously in the tongue, throat and perineum, accompanied usually by an unpleasant feeling of internally produced warmth over the whole body. These sensations, however, are extremely evanescent, and are in direct ratio to the speed and quantity of the injection.

5. If 1 c.c. be injected the sensations are produced in very moderate degree, usually invoking laughter on the part of the patient in 10 seconds, and pass off in 20 seconds when a further 1 c.c. may be injected. If 10 c.c., however, is rapidly introduced the pain is intolerable, and takes from 60 to 90 seconds to pass off. Slight collapse is produced, but complete recovery occurs within five minutes, and there is no subsequent reaction. It is best, therefore, to inject the 10 c.c. in 10 *definite doses* of 1 c.c., allowing 30 seconds between each "push" of the piston.

This gives less discomfort than a slow steady push, even taking the same amount of time, as the pain in this case becomes cumulative.

6. Should any of the solution be introduced extravenously a very severe sloughing may occur, exceeding that produced by such an accident with Neo-Kharsivan.

NOTES ON TWO CASES OF GANGRENOUS AND EROSIVE BALANO-POSTHITIS. By DR. L. A. WILLMOTT, M.R.C.S. (ENG.), L.R.C.P. (LOND.), MEDICAL OFFICER, BUKOBA.

This disease was first described as a separate clinical entity by Bataille and Berdal in 1891, and was later referred to as the "fourth venereal disease."

On 25th February, 1927, two men from different parts of Bukoba Province arrived at the Hospital with a severe inflammatory ulceration of the prepuce and glans penis (see photo). The lesions in each case were almost identical. They were regarded as examples of syphilitic phagadema (the obvious diagnosis in this district), and were treated as such.

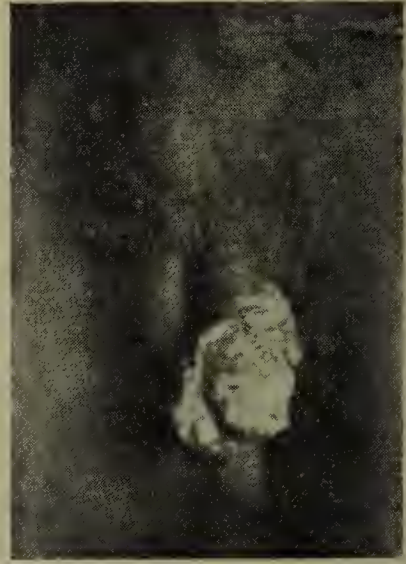
One man made a fairly complete recovery, and was no doubt syphilitic. The other did not respond in the slightest. Ulcerative granuloma was therefore considered.



Antimony treatment, however, failed to ameliorate his condition. Both cases were described in the Annual Report as "Syphilitic Phagadena."



(Both photos  
of  
same case.)



Microscopical examination of scrapings from the latter man's penis had revealed a varied flora, containing, among other organisms, a spirillum closely allied to that of Vincent's angina. This was duly noted in the Report (*q.v.*). But as the same organism had been obtained in cases of gonorrhœa and balanitis it was regarded as saphrophyte, and little attention paid to it.

In the *British Medical Journal* of 6th August, 1927, page 14, para. 82 (*q.v.*), an account occurs of the disease in question. It was my first intimation of its existence. On reading this it became abundantly clear that my case was one of Gangrenous Balano-posthitis, and *not* syphilis, which cleared up the unsatisfactory problem of the non-efficacy of anti-syphilitic therapy.

The disease being apparently rare—or, at any rate, rarely recognised—it seemed worth while recording its occurrence in this Province. The literature on the subject appears to include only about 150 cases.

The clinical features of this case are exactly described in the *British Medical Journal*, and which I can do no better than to quote. (The article is based on the record of two cases by Palmer in the *Urol. and Cut. Review*, May, 1927.)

There is an acute inflammatory affection of the glans penis and opposed preputial surfaces, characterised clinically by ulceration, erosion, and sometimes gangrene, with an abundant excretion of pus of peculiar odour, the organisms being morphologically identical with those of Vincent's angina, Noma, and Cancrum oris.

There are two types—a superficial or erosive and a gangrenous. The former is rarely septic. My case was probably a severe example of the latter.

It is of interest that this spirillum has been met with here in various other penile affections, but, as remarked previously, was regarded as of no importance.

One such case was that of a somewhat intractable balanitis in a European. A thin bluish film presented itself on the glans daily, and was despatched in flakes diurnally with hot water and soap. Its constant reappearance so annoyed the owner of it that it led him to consult me, although it gave rise to no symptoms.

The only abnormal feature was a long narrow prepuce, which should have been removed in infancy, and there was no history of gonorrhœa. I took a smear, however, and this revealed large numbers of a two-turned spirillum. Various applications, including

blue ointment (which made the condition worse if anything), were tried without success, and the condition eventually got better as a result probably simply of scrupulous cleanliness. This case was no doubt an example of "erosive" type.

The spirillum has also been observed in old-standing cases of gonorrhœa, so that this "fourth venereal disease" may possibly be a more common potentiality than has been regarded as the case.

NOTES ON CASES OF RHEUMATOID ARTHRITIS, PNEUMONIA, LION MAUL AND AN ASSAULT.  
By DR. J. H. McDONALD, M.B., CH.B. (ABERD.), MEDICAL OFFICER, LINDI.

1. A man of 78 years of age, an Indian, suffered from Rheumatoid Arthritis and had been almost unable to move on account of pain. His condition always became worse at the commencement of the rains. He had suffered like this for several years. He was given an injection of 0.45 gram of Neo-Kharsivan, and after a rigor on the following day, his condition started to improve until after three days, after which time he was completely free of pain or inflammation in the joints. He remained free for three months, after which the condition returned. The injections were repeated every three months, and he remained free during all the time that the injections were kept up.

2. A young man suffered from delayed resolution after Lobar Pneumonia. He was treated with calcium chloride in accordance with directions given on a Medical Circular for Gonorrhœa and septic conditions and his lung completely cleared up immediately.

3. A native was attacked by a lion. The lion approached him from behind and held his right shoulder in its mouth. The man's son caught his father's left arm and pulled and a tug-of-war ensued during which the lion relaxed his hold and retired to the bush. The patient was brought to hospital suffering from:—(1) Four puncture wounds of the right shoulder; (2) a deep cut of the buttock, severing the gluteal muscles; (3) deep cuts on the chest, abdomen, thighs, soles of feet and scalp. On admission the wounds were irrigated with 1 in 40 carbolic and earth and small stones were actually washed out of the wounds. The patient was given anti-tetanic serum on the following morning and the wounds were treated with fomentations of hot water and irrigations with eusol. The patient has completely recovered and has no impairment of the right shoulder joint over which the lion's teeth had gripped.

4. The Medical Officer attended a Medico-legal case in which the victim of an assault walked several miles and lived for 20 days after sustaining a depressed fracture of the frontal bone of the skull as a result of which the patient died.

NOTE ON DISTILLED WATER IN THE PREVENTION OF SWOLLEN AND DISABLED ARMS  
FOLLOWING FAULTY TECHNIQUE IN THE GIVING OF INTRAVENOUS INJECTIONS.  
By MR. W. A. IRVINE, L.C.P. AND S. (BOMBAY), SUB-ASSISTANT SURGEON,  
MAHENGE.

Notwithstanding the greatest care and caution in the giving of Intravenous Injections, it does occur that perhaps just once, owing to unavoidable circumstances, the needle either misses the vein or passes right through it, some of the injecting fluid escaping into the surrounding tissue. How irritating this can be is known to almost everyone, and the writer had a layman once remark to him that owing to a badly given injection some years previously that he would do anything rather than undergo the horrors of another intravenous injection.

The writer has tried a method which he has found so simple and effective in the prevention of the after effects following a faulty injection that he has been tempted to publish it.

On the patient complaining of pain, the site of injection is examined, and if convinced of a faulty injection, owing to signs of irritation, swelling, etc., the needle is withdrawn, and 5 to 10 c.c. of distilled water or normal saline is injected round the punctured site. This causes a temporary swelling, perhaps accompanied by a fleeting pain due to increased



tension round the site. The distilled water or saline, however, is rapidly absorbed, at the same time diluting the irritant fluid to such an extent as to prevent any further pain, cellulitis, or abscess formation otherwise attendant on a badly given injection.

NOTE ON THE VALUE OF ANIMAL INOCULATIONS IN THE DIAGNOSIS OF DOUBTFUL OUTBREAKS OF SMALLPOX, WITH SPECIAL REFERENCE TO THE MONKEY. By MR. W. A. IRVINE, L.C.P. & S. (BOMBAY), SUB-ASSISTANT SURGEON, MAHENGÉ.

The increasing importance given to the early diagnosis of Smallpox of late has led to many methods being devised to differentiate between this disease and Varicella. Most of these, however, require a laboratory and considerable experience of laboratory technique to be of value and as such are impracticable in bush stations where one has to rely on one's own resources for everything.

The writer wishes to describe a simple method which was of value to him during a recent outbreak of Smallpox at Mahenge and which in his opinion can be carried out by anyone under the most unfavourable conditions. No special knowledge of laboratory technique is required, and the necessary requisites are procurable in almost every station.

The experiment is based on the theory that the pus removed from the pustule of a positive case of Variola and inoculated in certain animals gives rise to a definite take over the inoculated areas, this not being true in cases of Varicella.

The animal chosen in this case was the *monkey*, as it is easily procurable and extremely sensitive to Vaccinia. The technique described below is based on the routine method used in the Laboratory, Dar-es-Salaam, in the manufacture of Anti-Variolous Lymph Vaccine.

A monkey being procured, the abdomen was shaved and washed with soap and water. The shaved surface was then swabbed over with Spirit Ether, and after drying, pus removed from a pustule of a suspected case of Smallpox was inoculated in different areas. The method of inoculation adopted being similar to that generally used in vaccination. If required a control can be used of distilled water or glycerine, care being taken to see that the vaccinating lancet does not contain any trace of pus and is sterile.

On the third day if positive a distinct take is noticed, which reaches maturity on the fifth day.

A take is recognised by at first redness, swelling, and later a distinct vesicle which goes on to form a pustule. In such cases the control remains or should remain negative.

#### ANNUAL REPORT FOR 1927 OF THE LIWALE SLEEPING SICKNESS AREA.

By COMPOUNDER F. P. LOPES.

The following new cases were diagnosed during the year :—

						Cases.	Deaths.
January	...	...	...	...	...	4	5
February	...	...	...	...	...	18	1
March ...	...	...	...	...	...	3	—
April ...	...	...	...	...	...	13	3
May ...	...	...	...	...	...	4	4
June ...	...	...	...	...	...	8	4
July ...	...	...	...	...	...	3	4
August ...	...	...	...	...	...	1	1
September	...	...	...	...	...	1	1
October	...	...	...	...	...	2	3
November	...	...	...	...	...	1	2
December	...	...	...	...	...	2	1
Total ...					...	<u>60</u>	<u>29</u>



Total cases remaining on 31st December, 1926	...	...	17
„ reported during the year	...	...	60
„ died during the year	...	...	29
„ discharged as cured (by Dr. Dye)	...	...	2
„ remaining on 31st December, 1927	...	...	46

Methods of treatment employed and results obtained (Table I).

#### METHOD 1.

*Bayer and Tryparsamide combined* (see Table II).

The above method seems fairly successful, but care has to be taken during the course as some of the patients' eyes become affected, but definite recovery of this takes place if the course is stopped at once.

#### METHOD 2.

*Bayer alone* (see Table III).

This method does not seem very successful in either early or late cases.

#### METHOD 3.

*Bayer and Tryparsamide* (see Table IV).

Eyes affected, as with Method 1.

Cases remaining on 31st December, 1926, treatment in 1927, see Table V.

Cases died before and after the first course of treatment, see Table VI.

Now it has been noted that Method 2 will no longer be used.

#### *Relapsed Cases.*

The following method will be employed :—

5 injections of Bayer of 1 grm. weekly...	...	...	...	5 weeks.
Rest 4 weeks	...	...	...	4 „
8 „ „ Tryparsamide of 3 grms. each weekly	...	...	...	8 „
Rest 4 weeks	...	...	...	4 „
5 „ „ Bayer of 1 grm. weekly...	...	...	...	5 „
Total	...	...	...	<u>26 weeks.</u>

The cases treated with Methods 1 and 3 should be allowed to go to their homes after 12 months' treatment, if they survive. The complete report of these two methods will be sent to you on 31st March, 1928, by which time the majority of the cases will be discharged.

TABLE I.

Method 1—	Drug.	Treatment.	
1st course—	<i>Bayer</i> , 5 injections of 1 grm. on alternate days...	—	10 days.
	Rest 8 weeks ... ..	8 weeks.	—
2nd „	<i>Tryparsamide</i> , 8 or 6 injections (depending on age, etc.) of 3 grms. weekly (24 grms.) ...	8 „	—
	Rest 8 weeks ... ..	8 „	—
3rd „	<i>Bayer</i> , 5 injections of 1 grm. weekly ... ..	5 „	—
	Rest 8 weeks ... ..	8 „	—
4th „	<i>Bayer</i> , 5 injections of 1 grm. weekly ... ..	5 „	—
		42 weeks and 10 days.	
		<u>=43 weeks and 3 days.</u>	

Method 2—		Treatment.	
1st course—	<i>Bayer</i> , 5 injections of 1 grm. on alternate days	—	10 days.
	Rest 8 weeks ... ..	8 weeks.	—
2nd „	<i>Bayer</i> , 5 injections of 1 grm. weekly ... ..	5 „	—
	Rest 8 weeks ... ..	8 „	—
3rd „	<i>Bayer</i> , 5 injections of 1 grm. monthly... ..	21 „	—
		42 weeks and 10 days.	
		<u>= 43 weeks and 3 days.</u>	

Method 3—		Treatment.	
1st course—	<i>Bayer</i> , 5 injections of 1 grm. on alternate days	—	10 days.
	Rest 8 weeks ... ..	8 weeks.	—
2nd „	<i>Tryparsamide</i> , 8 injections of 1 grm. weekly of 3 grms. each (24 grms.) ... ..	8 „	—
	Rest 8 weeks ... ..	8 „	—
3rd „	<i>Bayer</i> , 5 injections of 1 grm. monthly... ..	21 „	—
		45 weeks and 10 days.	
		<u>= 46 weeks and 3 days.</u>	

TABLE II.  
SLEEPING SICKNESS CASES TREATED 1927, WITH METHOD I (SEE TABLE I).

District	Case No.	Sex.	Age.	General condition.		Inter-current disease.	Treatment for inter-current disease.	Blood.		Urine.		Specific treatment dates, doses in grams.	Notes on Optic Atrophy, etc.	Remarks.
				Before specific treatment commenced.	After specific treatment commenced.			No. of exams.	No. of Typs. found.	No. of exams.	Albumen, No. of times seen.			
Liwale	232	M	25	Early case swelling of face only, 1.1.27	Much improved, no swelling, remained healthy up to date (after first course of B.)	Nil	Nil	2	1	10	3	5 B. ending on 17.1.27 8 T. " " 5.5.27 5 B. " " 2.8.27 5 B. " " 30.8.27 (see doses on Fig. 1)	Sight remained unaffected. No Albumen after the third course of Bayer	Diagnosed by Dr. Dye. Bayer and Tryparsamide given by Dr. Dye up to the end of May, 1927, from beginning of June by Compounder Lopes.
Do.	234	F	40	Ill for one month, slight swelling of feet, weakness, could walk. Early case, 11.1.27	Do.	Nil	Nil	2	1	10	5	5 B. ending on 20.1.27 8 T. " " 8.5.27 5 B. " " 9.8.27 5 B. " " 6.11.27	Sight remained unaffected. No albumen after the last course	Do.
Do.	235	M	40	Ill for two months, much oedema of legs, abdomen and some of face. Difficult to walk, 21.1.27	Do.	Nil	Nil	2	1	10	5	6 B. ending on 5.2.27 6 T. " " 7.5.27 5 B. " " 18.8.27 3 B. " " 1.11.27	Eyes affected after sixth injection of Tryparsamide, course stopped at once, recovered completely on 10.6.27, again affected after the third injection of Bayer of the last course, slight improvement	Do.
Do.	236	F	23	Very early case, never been ill with any symptoms. Parasite found while complaining of ordinary headache, 20.1.27	Do.	Nil	Nil	2	1	10	0	5 B. ending on 21.2.27 4 T. " " 12.5.27 Stopped treatment to see the action of smaller dosage on very early cases	Eyes not affected. No albumen	Do.
Do.	239	M	7	Ill for three months, no oedema, swelling of abdomen. Could walk. No mental symptoms, 2.2.27	Do.	Nil	Nil	2	1	10	10	6 B. ending on 15.2.27 6 T. " " 29.5.27 5 B. " " 31.8.27 5 B. " " 5.12.27	Eyes not affected. Albumen present although the patient appears healthy	Do.



TABLE II—continued.  
SLEEPING SICKNESS CASES TREATED 1927, WITH METHOD 1 (SEE TABLE I)—continued.

District.	Case No.	Sex.	Age.	General condition.		Inter-current disease.	Treatment for inter-current disease.	Blood.		Urine.		Specific treatment dates. Doses in grams.	Notes on Optic Atrophy, etc.	Remarks.
				Before specific treatment commenced.	After specific treatment commenced.			No. of exams.	No. of Tryps. found.	No. of exams.	Albumen, No. of times seen.			
Liwale ..	240	F	35	Ill for two months, partly wasted, oedema of legs, walks badly. No mental symptoms	Much improved, no swelling, remained healthy up to date (after first course of B.)	Malaria ..	Quinine ..	2	1	10	2	6 B. ending on 17.2.27 7 T. " " 29.5.27 5 B. " " 2.9.27 5 B. " " 30.11.27	Eyes affected after the seventh injection of Trypsamide, stopped at once apparently recovered on 10.6.27. Albumen absent during second course of Trypsamide	Diagnosed by Dr. Dye. Bayer and Trypsamide given by Dr. Dye up to the end of May, 1927, from beginning of June by Compounder Lopes.
Kibata ..	246	F	25	Ill for one month, no oedema, much wasted. Early case. 7.2.27	Do.	Nil	Nil	2	1	10	6	6 B. ending on 19.2.27 8 T. " " 7.6.27 5 B. " " 4.9.27 5 B. " " 2.12.27	Eyes unaffected. Albumen present although the patient appeared healthy	Do.
Liwale ..	247	F	15	Ill for two months, much wasted, no oedema. Apparently early case. 15.2.27	Eventually became ill after third course of Bayer, and died on 11.11.27	Nil	Nil	3	1	6	3	5 B. ending on 23.2.27 8 T. " " 11.6.27 5 B. " " 14.9.27	Similar to above. Tryps. never found again in the blood, death probably due to undiagnosed intercurrent disease.	Do.
Do. ..	251	F	40	Ill for one month, no oedema, no wasting. Presumably early case. 19.2.27	Much improved, no oedema, remained healthy up to date (after first course of B.)	Nil	Nil	2	1	10	6	5 B. ending on 28.2.27 5 T. " " 26.5.27 5 B. " " 13.9.27 5 B. " " 11.12.27	Eyes affected after the fifth injection of Trypsamide, apparently recovered on 7.7.27, after stopping the course. Albumen present.	Do.
Do. ..	252	M	35	Ill for few days, much weakness, no oedema. Early case. 21.2.27	Do. (not seen as ran away)	Nil	Nil	2	1	5	1	5 B. ending on 2.3.27 6 T. " " 6.6.27 (See on Notes column)	Eyes affected after the sixth injection of Trypsamide, apparently recovered, after stopping the course. Albumen absent after the first course of Bayer. (Patient ran away on 20.8.27 and has not been found up to date.)	Do.
Do. ..	253	M	13	Ill for 15 days, oedema of legs and swelling of abdomen, no wasting. Early case. 25.2.27	Much improved, no oedema, remained healthy up to date (after first course of B.)	Nil	Nil	2	1	9	3	5 B. ending on 7.3.27 8 T. " " 25.6.27 5 B. " " 22.9.27 5 B. " " 20.12.27	Eyes not affected. Albumen clear after the third course.	Do.

Do.	..	258	M	39	Ill for one month, well marked, œdema all over the body. Advanced case 9.4.27	Do.	Nil	..	Nil	..	2	1	6	1	5 B. ending on 18.4.27 8 T. " " 9.8.27 2 B. " " 16.10.27 (see on Notes column)	Eyes not affected. Albumen absent after the first course. (Ran away on 16.10.27 and has not been found up to date.)	Do.
Kibata	..	260	M	30	Ill for 15 days, œdema of legs. Early case. 15.4.27	Do.	Nil	..	Nil	..	2	1	7	3	5 B. ending on 25.4.27 5 T. " " 23.7.27 5 B. " " 10.11.27 (still on treatment)	Eyes affected after the fifth injection of Tryparsamide, recovered after stopping the course. Albumen absent after the second course.	Do.
Liwale	..	276	F	30	Ill for 1½ months, marked œdema of legs and abdomen. Fairly advanced case. 9.6.27	Do.	Nil	..	Nil	..	2	1	4	1	5 B. ending on 18.6.27 6 T. " " 22.9.27 4 B. " " 27.12.27	Eyes affected after the sixth injection of Tryparsamide. Recovered after stopping the course. Albumen present.	Diagnosed by Compounder Lopes. Bayer and Tryparsamide injections given by Compounder Lopes.
Do.	..	278	F	15	Ill for 1½ months, marked œdema of legs and abdomen. Early case. 17.6.27	Do.	Nil	..	Nil	..	2	1	5	1	5 B. ending on 26.6.27 8 T. " " 14.10.27 3 B. " " 28.12.27 (still on treatment)	Eyes not affected. Albumen absent after the first course of the method.	Do.
Do.	..	286	M	25	Ill for two months, well marked œdema all over the body. Fairly advanced case. 2.8.27	Do.	Nil	..	Nil	..	4	—	3	3	5 B. ending on 1.9.27 8 T. " " 20.12.27 (still on treatment)	Eyes not affected. Albumen present.	Do.

The cerebro-spinal fluid was not examined in any of the above cases before or after treatment.

The drug was given intravenously in rain water.

Total cases treated under this method of treatment ..	16
Number of cases died under treatment of this method ..	1
Number of cases remained well up to date ..	15

TABLE III.  
SLEEPING SICKNESS CASES TREATED 1927, WITH METHOD 2 (SEE TABLE I).

District.	Case No.	Sex.	Age.	General condition.		Inter-current disease.	Treatment for inter-current disease.	Blood.		Urine.		Specific treatment dates. Doses in grams (see Doses in Fig. 1).	Notes on Albumen, etc.	Remarks.
				Before specific treatment commenced.	After specific treatment commenced.			No. of exams.	No. of Typs. found.	No. of exams.	Albumen, No. of times seen.			
*Liwale ..	233	F	25	Ill for two months with swelling of face and feet; was pregnant; child died during illness. 3.1.27	Slightly improved after the first course of the method, became very ill beginning of February, apparently fit in the middle of March; now ill	Dysentery	Emetine Stovarsol	2	2	7	3	5 B. ending on 12.1.27 1 B. addit. on 9.2.27 5 B. ending on 7.5.27 5 B. " " 7.11.27 Additional treatment for relapse, 2 grms. B., ending 27.12.27	Albumen absent during the third course of method. Relapsed, microscopically positive on 17.12.27	Diagnosed by Dr. Dye. Bayer and Tryp-arsamide injections given by Dr. Dye up to the end of May, 1927, from June up to date by Compounder Lopes.
*Kibata ..	237	M	20	Ill for 15 days, had slight oedema of face and legs. Early case. 1.2.27	Much improved, no oedema, apparently fit after the first course, became ill after the last course; now ill, still alive	Nil	Nil	5	2	10	2	5 B. ending on 13.2.27 5 B. " " 11.5.27 5 B. " " 11.11.27 Additional treatment for relapse, 3 grms. B., weekly, ending 25.12.27	Albumen absent after the first course. Relapsed, microscopically positive on 8.12.27	Do.
Liwale ..	238	M	18	Ill for one month, well marked oedema of legs and abdomen. Early case. 2.2.27	Much improved, no oedema, apparently fit up to date.	Nil	Nil	2	1	10	4	6 B. ending on 15.2.27 5 B. " " 13.5.27 5 B. " " 13.11.27	Albumen absent after the second course	Do.
*Liwale ..	241	F	25	Ill for one month, oedema of legs, face and abdomen. Early case. 6.2.27	Much improved after the first course of the method, became ill during the third course, still alive	Nil	Nil	5	2	10	5	5 B. ending on 17.2.27 5 B. " " 15.5.27 5 B. " " 15.11.27 Additional treatment for relapse, 4 grms. B., ending 27.12.27	Albumen absent after the third course. Relapsed, microscopically positive on 5.12.27	
Do. ..	242	M	55	Ill for some time ago, weak, wasted, oedema of legs. Advanced case. 6.2.27	Much improved after the first course of the method, apparently fit up to date	Nil	Nil	2	1	10	7	5 B. ending on 17.2.27 5 B. " " 15.5.27 5 B. " " 15.11.27	Do.	
Do. ..	243	F	45	Ill for six months, oedema all over the body, well advanced case, unable to walk. 7.2.27	No improvement. Died after the second course of the method on 11.7.27	Nil	Nil	9	1	—		6 B. ending on 19.2.27 5 B. " " 17.5.27	Not examined ..	Do.
Do. ..	244	F	40	Ill for five days. Apparently very early case. 7.2.27	Much improved. Fit up to date	Nil	Nil	2	1	10	7	5 B. ending on 17.2.27 5 B. " " 15.5.27 5 B. " " 15.11.27	Albumen absent after the third course	Do.
Do. ..	249	F	28	Ill for three months, much oedema of legs, abdomen and mentally affected. Advanced case. 18.2.27	Much improved, not seen, as ran away on 20.8.27	Nil	Nil	2	1	7	5	6 B. ending on 2.3.27 5 B. " " 30.5.27 1 B. on 30.7.27	Albumen absent after the second course. Absconded; not traced	Do.





TABLE IV.  
SLEEPING SICKNESS CASES TREATED 1927, WITH METHOD 3 (SEE TABLE I).

District.	Case No.	Sex.	Age.	General condition.		Inter-current disease.	Treatment for inter-current disease.	Blood.		Urine.		Specific treatment dates, Doses in grams (see Doses in Fig. 1).	Notes on Optic, Albumen, etc.	Remarks.
				Before specific treatment commenced.	After specific treatment commenced.			No. of times.	No. of times.	No. of exams.	Albumen, No. of times seen.			
Liwale	262	M	30	Ill for three months, marked oedema all over the body, unable to walk, much advanced case. 21.4.27	Much improved, no oedema, apparently fit up to date	Nil	Nil	2	1	6	—	5 B. ending on 2.5.27 8 T. " " 20.8.27 3 B. " " 20.12.27	Sight unaffected. No albumen	Diagnosed by Dr. Dye. Bayer and Trypsamide given by Dr. Dye up to end of May, 1927, from June to date by Com-pounder Lopes.
Do.	263	M	30	Ill for three months, marked oedema of legs and abdomen, could walk. Advanced case. 26.4.27	Do.	Nil	Nil	2	1	7	3	5 B. ending on 5.5.27 5 T. " " 2.8.27 3 B. " " 23.12.27 2 more to be given	Eyes affected after fifth injection of Trypsamide. Apparently recovered when course stopped. Albumen absent after the second course	Do.
Kilwa	265	M	40	Ill for some time, oedema of legs, difficult to walk. Apparently early case. 29.4.27	Do.	Nil	Nil	2	1	7	2	5 B. ending on 8.5.27 8 T. " " 26.8.27 3 B. " " 26.12.27 2 more to be given	Sight unaffected. Albumen absent after the second course	Do.
Do.	268	F	35	Ill for two months, oedema of legs and abdomen, difficult to walk. Apparently early case. 29.4.27	Do.	Nil	Nil	2	1	7	1	5 B. ending on 8.5.27 5 T. " " 5.8.27 3 B. " " 26.12.27	Sight affected after the fifth injection of Trypsamide when course stopped. Albumen absent after the second course	Do.
Do.	270	M	30	Ill for some time, oedema of legs, difficult to walk. Advanced case. 30.4.27	Do.	Nil	Nil	2	1	7	2	5 B. ending on 10.5.27 5 T. " " 7.8.27 3 B. " " 28.12.27 2 more to be given	Do.	Do.
Liwale	272	M	25	Ill for 2½ months, oedema of legs and abdomen, difficult to walk. Early case. 11.5.27	Do	Nil	Nil	2	1	6	3	5 B. ending on 20.5.27 8 T. " " 7.9.27 2 B. " " 7.12.27 3 more to be given	Sight unaffected. Albumen absent after the second course	Do.

Do.	..	273	F	25	Ill for some time, marked oedema of legs and abdomen, could walk. Early case. 12.5.27	Do	Nil	..	Nil	..	2	1	6	6	5 B. ending on 20.5.27 8 T. " " 7.9.27 2 B. " " 7.12.27 3 more to be given	Sight unaffected. Albumen present, but the patient appears healthy	Do.
Do.	..	284	M	15	Ill for few days, oedema of face and slight of abdomen. Early case. 18.7.27	Do.	Nil	..	Nil	..	2	1	4	2	5 B. ending on 27.7.27 8 T. " " 15.11.27 5 more to be given	Sight unaffected. Albumen present	Diagnosed, and Bayer and Tryparsamide injections given by Compounder Lopes.
Do.	..	285	F	30	Ill for 4 months, marked oedema of legs and abdomen, unable to walk. Advanced case. 25.7.27	No improvement. Died after the first injection	Nil	..	Nil	..	2	1	—	—	5 B. ending on 3.8.27 1 T. " " 3.10.27	Not examined	Do.
Do.	..	288	M	10	Ill for one month, oedema of legs and abdomen. Early case. 12.10.27	Much improved, no oedema, apparently fit up to date	Nil	..	Nil	..	2	1	2	—	5 B. ending on 21.10.27 2 T. " " 28.12.27 Still on treatment	Albumen absent up to date	Diagnosed, and Bayer and Tryparsamide given by Compounder Lopes.
Do.	..	292	F	30	Ill for some time, oedema of legs, difficult to walk. Advanced case	New case. Should keep on above method if surviving	Nil	..	Nil	..	1	1	—	—	5 B. ending on 14.12.27 Still on treatment	Not yet examined	Do.

The cerebro-spinal fluid was not examined in any of the above cases before or after treatment.

The injections were given intravenously in rain-water.

Cases treated under this method of treatment (and those still under treatment)	..	11
Number of cases died	..	1
Remained well up to date	..	10



TABLE V.

CASES WHO DIED DURING 1927 BEFORE AND AFTER THE FIRST COURSE OF BAYER, AND WHO DID NOT SURVIVE LONG ENOUGH TO BE TREATED WITH EITHER OF THE METHODS SHOWN IN TABLE I.

District.	Case No.	Sex.	Age.	General condition.		Blood.	Specific treatment. dates, doses in grams.	Remarks.
				Before specific treatment commenced.	After specific treatment commenced.			
Liwale ..	248	F	1½	Ill for few days, œdema of abdomen, small child in arms, 15.2.27	No improvement. Died on 26.2.27	Positive ..	1 gm. B., 15.2.27* 1 " 18.2.27* 1 " 21.2.27* 1 " 25.2.27*	Diagnosed by Dr. Dye. Bayer and Tryparsamide given by Dr. Dye up to the end of May. From June to date by Com-pounder Lopes.
Do. ..	257	M	55	Ill for some time, marked œdema of legs and abdomen, unable to walk, 22.3.27	No improvement. Died on 6.4.27	Do. ..	6 gm. B., ending on 2.4.27	Do.
Kibata ..	261	F	30	Not seen, but husband (No. 260) states ill for many months, œdema of legs and abdomen	Reported dead on 15.4.27	Clinically positive	No treatment. Accepted as Sleeping Sickness by Dr. Dye	
Kilwa ..	264	F	55	Ill for three months, œdema of lower limbs only, unable to walk, 29.4.27	No improvement. Died after second injection of Bayer on 4.5.27	Positive ..	2 gm. B. ending on 2.5.27	Accepted by Dr. Dye.
Do. ..	266	F	40	Ill for months, œdema of legs and abdomen, unable to walk, 29.4.27	No improvement. Died on 6.7.27	Do. ..	5 gm. B. ending on 8.5.27	Do.
Do. ..	267	F	35	Ill for two months, œdema of legs and abdomen, unable to walk, 29.4.27	No improvement. Died on 30.5.27	Do. ..	5 gm. B. ending on 8.5.27	Do.
Do. ..	269	M	30	Not seen, blood sent in by African District Sanitary Inspector on 16.4.27	Died on way to camp on 27.4.27	Do. ..	No treatment ..	Do.

Do.	..	271	M	25	Not seen, blood sent in by African District Sanitary Inspector on 29.4.27	Died on way to camp on 5.5.27	Do.	..	Do.	..	Do.
Liwale	..	274	F	45	Ill for some time, oedema of legs, abdomen and face, unable to walk, 14.5.27	No improvement. Died on 11.6.27	Do.	..	5 grm. B. ending on 23.5.27	..	Do.
Kibata	..	279	F	35	Ill for two months, oedema of legs and abdomen, unable to walk, 19.6.27	Died after third injection of Bayer	Do.	..	3 grm. B. ending on 24.6.27	..	Diagnosed by Compounder. Bayer and Tryparsamide given by Compounder Lopes.
Liwale	..	281	M	30	Ill for some time, oedema of legs and abdomen, unable to walk, 23.6.27	No improvement. Died after fifth injection of Bayer on 17.7.27	Do.	..	5 grm. B. ending on 2.7.27	..	Do.
Do.	..	283	M	40	Ill for seven months, no oedema, much wasted, unable to walk, 17.7.27	No improvement. Died on 7.8.27	Do.	..	5 grm. B. ending on 27.7.27	..	Do.
Do.	..	287	M	40	Ill for some time, marked oedema of legs and abdomen, difficult to walk, 11.9.27	Died after one injection on 13.9.27	Do.	..	1 grm. B., 12.9.27	..	Do.
Do.	..	289	M	30	Ill for three months, oedema of legs, much wasted, unable to walk, 19.10.27	No improvement. Died on 28.10.27	Do.	..	5 grm. B. ending on 28.10.27	..	Diagnosed by Compounder. Bayer and Tryparsamide injections given by Compounder Lopes.
Do.	..	290	F	45	Ill for three months, oedema of face, unable to walk, 29.11.27	Died after fifth injection on 20.11.27	Do.	..	5 grm. B. ending on 10.11.27	..	Do.
Do.	..	291	M	40	Ill for eight months, marked oedema of legs and abdomen, unable to walk, very advanced case, 3.12.27	Died after second injection on 10.12.27	Do.	..	3 grm. B. ending on 8.12.27	..	Do.

All injections were given intravenously in rain-water.

\* These injections were given intramuscularly in rain-water.

DENTAL REPORT FOR THE YEAR 1927. By H. M. FISHER, L.D.S., R.C.S. (ENG.),  
DENTAL SURGEON.

A summary of the dental work performed during the year 1927, for officials and their families, will be found below.

In order to show how the work has increased, the dental returns for 1922 are shown alongside, the staff performing this work being the same now as in 1922, *i.e.*, one dental surgeon.

						1927.	1922.
Attendances	...	...	...	...	...	2,085	1,133
Fillings	...	...	...	...	...	708	485
Extractions	...	...	...	...	...	535	192
Scalings	...	...	...	...	...	45	111
Pulp treatment	...	...	...	...	...	80	48
Dentures	...	...	...	...	...	96	33
Repairs to dentures	...	...	...	...	...	78	38
Radiograms taken	...	...	...	...	...	200	—

Simple scaling of teeth is carried out as a routine measure, and is not recorded. The scalings shown in 1927 are cases of pyorrhœa treated ; those in 1922 include simple scaling as well.

Comparing the above returns, it will be seen how the mechanical work has increased.

The X-ray Apparatus purchased in 1925 has proved of the greatest use and help, especially as a means of confirming a clinical diagnosis ; much unsuspected disease has also been brought to light, with benefit to the sufferer.

A number of hours were devoted to the instruction of four of the senior members of the Dispenser's Class in the theoretical extraction of teeth, *i.e.*, their simple anatomy, the correct forceps to use, and mode of procedure to be adopted. Time and opportunity to collect suitable patients, for demonstration purposes, did not permit of there being any practical instruction, without which little benefit can result.

It is considered of the greatest importance that dispensers and dressers undergoing training here should be given practical instruction in the extraction of teeth ; no time is at present available to do this.

Some seventy native school children were treated during the year, but no proper routine inspection or treatment has been carried out owing to lack of time ; it seems paradoxical to spend money on medical attention for these children's bodily ailments, and at the same time neglect one of the chief causes of ill-health, *i.e.*, a dirty mouth.

Numbers of natives from the gaol, hospitals, K.A.R. and police lines, government offices, personal servants and natives living in the town, have been treated, generally for the relief of pain, by extraction, but a few fillings have been done for them. It is noted that a number of them have jaws insufficiently developed to permit the proper eruption of the third mandibular molars, resulting in partial eruption or misplacement of these teeth, with its resultant abscess or caries ; much skill is required for their removal.

If the work for officials and their families increases—and there is every likelihood of its doing so—other provision will have to be made for this class of work. It must be remembered that the native inhabitants of the Territory will not be in a position to pay for dental treatment for very many years, and that it will be necessary for the Government to organise a service by which simple treatment will be made available for them at various centres. They appear, at any rate in the towns, to suffer from all the dental diseases common amongst the more civilised races, presumably with the same ill-effects upon their health and resistance.



Tabora and Dodoma were visited in August, but it has become most difficult to leave the Capital on account of the increased demands on the writer's services, to say nothing of the accumulation and disorganisation of work during his absence.

Assistance was asked for during the year, and recommendations were made that a staff such as the following should be aimed at :—

Dar-es-Salaam	...	...	...	...	One dental surgeon, one mechanic.
Tanga (for Northern Area and Zanzibar)	...	...	...	...	One dental surgeon, one mechanic.
Mwanza (for Bukoba and Central Line)	...	...	...	...	One dental surgeon.
Tukuyu (for Provinces south of the Line)	...	...	...	...	One dental surgeon.
For purposes of relief	...	...	...	...	One dental surgeon.

It was thought that were such a staff appointed, the whole community would benefit to the following extent :—

- (1) The dental work of the Territory would go on without interruption during leave.
- (2) Every Province could be visited at least once in six months.
- (3) The Asiatic Staff could receive better attention.
- (4) The native population could receive simple treatment :—
  - (a) Where dental surgeons were stationed or visiting.
  - (b) From native dispensers trained by the dental surgeons.
- (5) The school children could be looked after in the various areas.
- (6) Mechanical work could be done with greater despatch, and the most suitable work done without reference to time available.
- (7) There would be no disorganisation of work and expense as a result of officials attending here. This involves a large sum of money annually. Wives and families would receive treatment without having to pay heavy travelling expenses to come here, and this would apply to the general community.
- (8) Although the cost of salaries for this staff would be £2,600 per annum over and above those at present paid, a large sum would be saved yearly on travelling expenses of officials coming here, and their salaries during their absence from duty ; this involved about £800 last year. 50 per cent. of the writer's time, now taken up with mechanical work, would be available for surgical work, and a large sum could be paid into revenue for the mechanical work done by the mechanics here and at Tanga.

#### DENTAL REPORT FOR THE YEAR 1927. By A. S. NEWTON, L.D.S. (LIV.), DENTAL SURGEON, TANGA.

The following is a summary of the work done for European officials and their families :—

Attendances...	...	...	...	...	...	...	631
Fillings	...	...	...	...	...	...	246
Extractions	...	...	...	...	...	...	114
Pulp treatment	...	...	...	...	...	...	24
Scalings	...	...	...	...	...	...	49
Dentures	...	...	...	...	...	...	21
Repairs to dentures	...	...	...	...	...	...	42

Zanzibar has been visited four times, the visits occupying in all 99 days.

Lushoto, Moshi and Arusha were visited, the safari occupying 33 days.

The subordinate staff has received treatment as required upon such treatment being applied for. The local school children have been inspected as regularly as time and residence in Tanga would permit. The treatment done, however, has been mainly of the emergency type associated with the relief of pain.

Much more remains to be done in the way of conservative work, but the time in which this could be accomplished has, at present, to be devoted to mechanical work.

This mechanical work involves a considerable expenditure of time which could be more usefully employed by the Dental Surgeon.

Thus the appointment of a Dental Mechanic would go far towards relieving the severe pressure of work and enable the Dental Surgeon to devote his time more fully to the constantly increasing demands upon his services.

J. O. SHIRCORE,  
*Director of Medical and Sanitary Services,*  
*Tanganyika Territory.*

### RETURNS.

TABLE I.

*Medical Staff.*—Disposition of as on 31st December, 1927.

NAME AND QUALIFICATIONS.	RANK.	STATION.	REMARKS.
J. O. SHIRCORE, C.M.G., M.B., Ch.B. (Edin.), L.R.C.P., L.R.C.S. and L.R.F.P.S. (Edin. and Glas.), M.R.C.P. (Edin.).	D.M.S.S. .. ..	Dar-es-Salaam.	
J. PUGH, M.R.C.S. (Eng.), L.R.C.P. (Lond.).	D.D.M.S. .. ..	"	
A. H. OWEN, B.A. (Camb.), M.R.C.S. (Eng.), L.R.C.P. (Lond.), D.T.M. and H. (Camb.).	D.D.S.S. .. ..	"	
P. A. CLEARKIN, M.B., Ch.B., B.A.O. (Belf.), D.P.H. (Irel.).	D.D.L.S. .. ..	On leave.	
J. F. CORSON, M.D., Ch.B. (Manch.), D.P.H., D.T.M. and H. (Cantab.).	Asst. Bacteriologist	Dar-es-Salaam ..	Ag. D.D.L.S.
J. W. McHARDY, B.Sc. (Agric.) (Edin.)	Entomologist ..	"	
T. H. SUFFERN, M.B., B.A.O., Ch.B. (Roy. University).	S.M.O. .. ..	On leave.	
C. L. IEVERS, L.R.C.S., L.R.C.P. (Edin.), D.T.M. (Liv.), L.R.F.P.S. (Glas.).	" .. ..	"	
R. R. SCOTT, M.C., M.B., B.S. (Durham), M.R.C.S. (Eng.), L.R.C.P., D.P.H. (Lond.).	S.S.O. .. ..	Dar-es-Salaam.	
J. H. THOMSON, M.B., Ch.B. (Aberd.)	S.M.O. .. ..	Mwanza.	
G. R. C. WILSON, M.R.C.S. (Eng.), L.R.C.P. (Lond.).	" .. ..	Tanga.	
G. MACLEAN, M.B., Ch.B. (Glas.), D.T.M. (Liv.).	Sleeping Sickness Officer.	Tabora.	
C. R. H. TICHBORNE, L.A.H. (Dublin)	M.O. .. ..	Kondoa-Irangi.	
C. B. B. REID, M.B., Ch.B. (Edin.), D.T.M. (Liv.).	" .. ..	On leave.	
J. H. PARRY, B.A. (Cantab.), M.R.C.S. (Eng.), L.R.C.P. (Lond.).	" .. ..	Dar-es-Salaam.	
A. MCA. BLACKWOOD, M.B., Ch.B. (Glas.).	" .. ..	Dodoma.	
C. H. PHILIPS, L.M.S.S.A. (Lond.) ..	" .. ..	Moshi.	
G. A. WILLIAMS, M.R.C.S. (Eng.), L.R.C.P. (Lond.).	" .. ..	Morogoro.	

RETURNS—*continued.*TABLE I—*continued.**Medical Staff.*—Disposition of as on 31st December, 1927—*continued.*

NAME AND QUALIFICATIONS.	RANK.	STATION.	REMARKS.
W. H. DYE, M.R.C.S. (Eng.), L.R.C.P. (Lond.), L.D.S., R.C.S. (Eng.), D.T.M. and H. (Lond.).	M.O. .. ..	On leave.	
C. F. SHELTON, M.D., B.S., L.R.C.P. (Lond.), M.R.C.S. (Eng.), D.T.M. and H.	„ .. ..	Iringa.	
R. NIXON, M.B., Ch.B., D.T.M., D.P.H. (Liv.).	S.O. .. ..	Tanga.	
A. I. MEEK, L.R.C.P., L.R.C.S., L.R.F.P. and S. (Glas.), D.P.H. (Edin.).	„ .. ..	On leave.	
J. J. B. EDMOND, M.C., M.B., Ch.B. (Edin.), D.T.M. and H. (Lond.).	M.O. .. ..	„	
A. R. LESTER, M.B., B.S. (Bombay), F.R.F.P.S. (Glas.), D.P.H., D.T.M. and H. (Edin.).	„ .. ..	Kahama.	
W. K. CONNELL, M.B., Ch.B. (Glas.), F.R.C.S. (Eng.).	„ .. ..	Dar-es-Salaam.	
F. R. LOCKHART, M.B., Ch.B. (Manch.).	„ .. ..	Tabora.	
D. V. LATHAM, B.A., M.B., Ch.B., B.A.O. (Dub.).	„ .. ..	Kilosa.	
T. LANGAN, M.B., Ch.B., B.A.O. (Dub.).	„ .. ..	On leave.	
H. FAIRBAIRN, M.B., Ch.B. (Glas.) ..	„ .. ..	„	
J. WILLIAMSON, M.B., Ch.B. (Edin.) ..	„ .. ..	Dar-es-Salaam.	
C. R. STEEL, M.R.C.S. (Eng.), L.R.C.P. (Lond.).	„ .. ..	Kigoma.	
J. W. GRAHAM, M.C., M.D., M.B., Ch.B. (Glas.).	„ .. ..	On leave.	
R. C. SPEIRS, M.B., Ch.B. (Edin.) ..	„ .. ..	„	
J. S. ARMSTRONG, M.C., B.A., M.B., B.Ch., B.A.O. (Dublin).	„ .. ..	Arusha.	
H. J. O'D. BURKE-GAFFNEY, M.B., B.Ch., B.A.O. (Dublin).	„ .. ..	On leave.	
R. MACKAY, M.B., Ch.B. (Aberd.) ..	„ .. ..	„	
B. O. WILKIN, M.B., Ch.B. (Edin.) ..	„ .. ..	„	
J. C. R. BUCHANAN, M.B., Ch.B. (Edin.), D.T.M. and H.	„ .. ..	Ufipa (Tabora) ..	Sleeping Sickness duty.
A. MCKENZIE, M.B., B.S. (Lond.), D.T.M. and H. (Lond.), L.M.S.S.A.	„ .. ..	On leave.	
G. S. P. NOBLE, M.B., Ch.B. (Glas.) ..	„ .. ..	Musoma .. ..	Sleeping Sickness duty.
L. A. WILLMOTT, M.R.C.S. (Eng.), L.R.C.P. (Lond.).	„ .. ..	Bukoba.	
I. SANDERSON, M.B., Ch.B. (Edin.) ..	„ .. ..	Kigoma.	
H. VAN R. MOSTERT, B.A. (Transvaal), M.B., Ch.B. (Edin.).	„ .. ..	Mwanza.	
D. A. SKAN, M.R.C.S. (Eng.), L.R.C.P. (Lond.), D.T.M., D.T.H. (Liv.).	„ .. ..	Lushoto.	
B. A. COGHLAN, M.B., B.Ch. (Dublin), D.T.M. (Liv.).	„ .. ..	Ufipa (Tabora) ..	Sleeping Sickness duty.
W. J. AITKEN, M.B., Ch.B. (Glas.), D.T.M. and H. (Liv.).	„ .. ..	Mwanza.	
H. N. DAVIES, M.B., Ch.B. (Edin.), D.T.M. (Liv.).	„ .. ..	Moshi (Rombo).	
D. PLUM, M.R.C.S. (Eng.), L.R.C.P. (Lond.).	„ .. ..	Tukuyu.	
P. S. BELL, M.R.C.S. (Eng.), L.R.C.P. (Lond.).	„ .. ..	Sick leave.	



RETURNS—*continued.*TABLE I—*continued.**Medical Staff.*—Disposition of as on 31st December, 1927—*continued.*

NAME AND QUALIFICATIONS.	RANK.	STATION.	REMARKS.
J. H. McDONALD, M.B., Ch.B. (Aberd.).	M.O. .. ..	Lindi.	
J. HARKNESS, L.R.C.P., L.R.C.S. and L.R.F.P.S. (Edin. and Glas.), L.D.S., R.C.S. (Edin.).	" .. ..	Dar-es-Salaam.	
MISS M. HARVEY CLARKE, M.R.C.S., L.R.C.P. (Eng.), D.P.H. (Lond.).	" .. ..	"	
C. WILCOCKS, M.B., C.B. .. ..	" .. ..	"	
S. E. THEIS, M.R.C.S. (Eng.), L.R.C.P. (Lond.).	" .. ..	Songea.	
C. J. MACQUILLAN, B.A., M.B., B.Ch., B.A.O.	" .. ..	Tabora .. ..	Sleeping Sickness duty.
H. M. FISHER, L.D.S., R.C.S. (Eng.)	Dental Surgeon ..	Dar-es-Salaam.	
A. S. NEWTON, L.D.S. (Liv.) .. ..	" .. ..	On leave.	
MISS F. M. PLANT .. ..	S.N.S. .. ..	Dar-es-Salaam.	
MISS J. FRASER .. ..	" .. ..	Tanga.	
MISS E. L. KEMSLEY, R.R.C. .. ..	" .. ..	Kahama .. ..	Maternity and C.W. Clinic.
MISS E. BISHOP .. ..	" .. ..	Tabora.	
MISS B. G. ALLARDES .. ..	S. and H. Visitor ..	Dar-es-Salaam.	
MISS A. L. RYDER .. ..	" .. ..	Kahama.	
MISS M. B. H. MACRAE .. ..	Nursing Sister ..	Moshi.	
MISS M. DONALD .. ..	" .. ..	On leave.	
MISS K. THOMPSON .. ..	" .. ..	Tabora.	
MISS A. MUNCASTER .. ..	" .. ..	Dar-es-Salaam.	
MRS. M. K. TURNLEY .. ..	" .. ..	Dodoma.	
MISS J. E. WOOTTEN .. ..	" .. ..	Mwanza.	
MRS. E. L. EVANS .. ..	" .. ..	Dar-es-Salaam.	
MISS E. HASLETT .. ..	" .. ..	Tabora.	
MISS K. P. HECKFORD .. ..	" .. ..	"	
MISS D. A. PORTER .. ..	" .. ..	On leave.	
MISS M. C. L. MAPP .. ..	" .. ..	"	
MISS E. B. CRICHTON .. ..	" .. ..	"	
MISS M. KAY .. ..	" .. ..	"	
MISS M. D. WHITE .. ..	" .. ..	Dar-es-Salaam.	
MISS A. M. HOUGH .. ..	" .. ..	Arusha.	
MISS C. B. ROBINSON .. ..	" .. ..	Dar-es-Salaam.	
MISS G. D. UNDERWOOD .. ..	" .. ..	"	
MISS J. D. LEIGHTON .. ..	" .. ..	Tanga.	
MISS M. ANDREWS .. ..	" .. ..	"	
MISS E. M. HAYWARD .. ..	" .. ..	"	
MISS M. V. McILROY .. ..	" .. ..	Dar-es-Salaam.	
MISS R. V. G. DAYE .. ..	" .. ..	Mwanza.	
MISS J. L. VAUX .. ..	" .. ..	Tabora.	
B. G. PANDIT, L.C.P. and S. (Bombay)	Senior S.A.S. ..	Bukoba.	
D. A. PURANDRE, L.C.P. and S. (Bombay).	" .. ..	Mwanza.	
Y. L. MOOLE, L.C.P. and S. (Bombay)	S.A.S. .. ..	Nzega.	
C. K. BORSADA, L.C.P. and S. (Bombay).	" .. ..	Tanga.	
P. S. PARANJPE, L.C.P. and S. (Bombay).	" .. ..	Arusha.	
J. F. MACEDO, L.C.P. and S. (Bombay)	" .. ..	Iringa.	
Y. B. KELSHIKER, L.C.P. and S. (Bombay).	" .. ..	Bagamoyo.	
M. C. K. THOMAS, L.M.S. (Travancore)	" .. ..	Tabora.	
G. V. SAKRIKAR, L.C.P. and S. (Bombay).	" .. ..	"	
B. K. CHRISTIAN, L.C.P. and S. (Bombay).	" .. ..	Tunduru.	

RETURNS—*continued.*TABLE I—*continued.**Medical Staff.*—Disposition of as on 31st December, 1927—*continued.*

NAME AND QUALIFICATIONS.	RANK.	STATION.	REMARKS.
M. P. DAVE, L.C.P. and S. (Bombay)	S.A.S. .. ..	Tanga.	
T. M. JOSEPH, L.M.P. (Madras) ..	.. ..	On leave.	
W. A. IRVINE, L.C.P. and S. (Bombay)	.. ..	Mahenge.	
CHUNILAL KHANNA .. ..	.. ..	Tabora.	
S. R. ABHYANKAR, L.C.P. and S. (Bombay).	.. ..	On leave.	
C. K. DESAI, L.C.P. and S. (Bombay)	.. ..	Utete.	
P. V. GOKHALE, L.C.P. and S. (Bombay).	.. ..	On leave.	
M. B. PANDYA, L.C.P. and S. (Bombay).	.. ..	Ujiji.	
SANT RAM, Certified Lahore Medical School.	.. ..	Moshi.	
HARI SINGH, L.S.M.F. (Punjab) ..	.. ..	Kigoma.	
D. A. MHAISKAR, L.C.P. and S. (Bombay).	.. ..	Lindi.	
W. R. BOWRY, L.M.F. (Bengal) ..	.. ..	Musoma.	
V. S. NIJASURE, L.C.P. and S. (Bombay).	.. ..	Shinyanga.	
G. V. GODBOLE, L.C.P. and S. (Bombay).	.. ..	Songea.	
HARBAL SINGH, L.M.F. (Punjab) ..	.. ..	Lindi.	
S. E. PURAM, L.C.P. and S. (Calcutta)	.. ..	Kondoa-Irangi.	
G. A. MHAISKAR, L.C.P. and S. (Bombay).	.. ..	Mafia.	
N. B. TOTE, L.C.P. and S. (Bombay)	.. ..	Tanga.	
G. V. SANE, L.C.P. and S. (Bombay)	.. ..	Kasulo.	
MALUK SINGH, L.S.M.F. (Punjab) ..	.. ..	Morogoro.	
RAM SINGH, L.S.M.F. (Punjab) ..	.. ..	Mwaya.	
P. N. NAIR, L.M.F. (Madras) ..	.. ..	Mikindani.	
HARCHARAN SINGH, L.M.P. (Central Province).	.. ..	Kahama.	
S. W. GUPTA, L.C.P. and S. (Bombay)	.. ..	Kilwa.	
BASANT SINGH, L.M.P. (Agra) ..	.. ..	Kahama.	
P. R. DHAVLE, I.M.D. (Poona) ..	.. ..	Dar-es-Salaam.	
G. K. KHOT, L.C.P. and S. (Bombay)	.. ..	Kasanga.	
S. N. PATEL, L.C.P. and S. (Bombay)	.. ..	Kibondo.	
M. G. PANVALKAR, L.C.P. and S. (Bombay).	.. ..	Tabora.	
G. V. HARICHANDRAKAR, L.C.P. and S. (Bombay).	.. ..	Mbeya.	
J. K. DAVE, L.C.P. and S. (Bombay)	.. ..	Mwanza.	
G. R. GORE, L.C.P. and S. (Bombay)	.. ..	Dodoma.	
P. K. DATE, L.M.P. (Central Prov.) ..	.. ..	Kibaya.	
V. V. APTE, L.C.P. and S. (Bombay)	.. ..	Kisaki.	
JAGAT SINGH DOSANJH, L.M.F. (Bengal).	.. ..	Kahama.	
L. CORO .. ..	.. ..	Namanyere.	
V. S. KANITKAR, L.C.P. and S. (Bombay).	.. ..	Mkalama.	
R. V. ANANTHAKRISHNAN, L.M. and S. (Madras).	.. ..	Mafia.	
N. C. DANIEL, L.M.P. (Madras) ..	.. ..	Tabora.	
S. S. NADKERNI, L.C.P. and S. (Bombay).	.. ..	Biharamulo.	
D. I. ABRAHAM, L.M.F. (Calcutta) ..	.. ..	Tanga.	
M. S. REDDI, L.M.P. (Madras) ..	.. ..	Tabora.	

## PRINCIPAL CHANGES.

## TRANSFERS.

Nil.

## LEAVE OF ABSENCE.

*European.*

- Dr. J. O. Shircore, C.M.G., Director of Medical and Sanitary Services, 9th April till 11th November.
- Dr. J. Pugh, Deputy Director of Medical Service, beginning of the year till 14th July.
- Mr. J. L. Mason, Chief Clerk, beginning of the year till 19th February.
- Dr. P. A. Clearkin, Deputy Director of Laboratory Service, 27th November till end of the year.
- Dr. T. H. Suffern, Senior Medical Officer, 7th May till end of the year.
- Dr. C. L. Ievers, Senior Medical Officer, 16th June till end of the year.
- Dr. G. Maclean, Sleeping Sickness Officer, 16th January till 11th August.
- Dr. C. B. B. Reid, Medical Officer, 27th November till end of the year.
- Dr. C. H. Philips, Medical Officer, beginning of the year till 19th February.
- Dr. G. A. Williams, Medical Officer, 19th March till 24th October.
- Dr. W. H. Dye, Medical Officer, 4th July till end of the year.
- Dr. C. F. Shelton, Medical Officer, 14th February till 1st December.
- Dr. R. Nixon, Medical Officer, beginning of the year till 14th July.
- Dr. A. I. Meek, Medical Officer, 9th April till end of the year.
- Dr. J. J. B. Edmond, Medical Officer, 18th July till end of the year.
- Dr. A. R. Lester, Medical Officer, beginning of the year till 17th June.
- Dr. W. K. Connell, Medical Officer, beginning of the year till 5th September.
- Dr. F. R. Lockhart, Medical Officer, beginning of the year till 29th May.
- Dr. D. V. Latham, Medical Officer, 16th February till 5th December.
- Dr. T. Langan, Medical Officer, 4th July till end of the year.
- Dr. H. Fairbairn, Medical Officer, 28th August till end of the year.
- Dr. J. Williamson, Medical Officer, beginning of the year till 27th December.
- Dr. C. R. Steel, Medical Officer, 16th January till 24th October.
- Dr. J. W. Graham, Medical Officer, 19th September till end of the year.
- Dr. R. C. Speirs, Medical Officer, 25th October till end of the year.
- Dr. H. J. O'D. Burke-Gaffney, Medical Officer, 19th September till end of the year.
- Dr. R. Mackay, Medical Officer, 17th September till end of the year.
- Dr. B. O. Wilkin, Medical Officer, 22nd November till end of the year.
- Dr. A. McKenzie, Medical Officer, 6th December till end of the year.
- Dr. I. Sanderson, Medical Officer, 16th November till end of the year.
- Dr. P. S. Bell, Medical Officer, 28th July till end of the year (sick leave).
- Mr. A. S. Newton, Dental Surgeon, 27th October till end of the year.
- Miss J. Fraser, Senior Nursing Sister, 13th April till 12th November.
- Miss E. Bishop, Senior Nursing Sister, beginning of the year till 31st July.
- Miss B. G. Allardes, Sister and Health Visitor, beginning of the year till 29th May.
- Miss M. H. B. Macrae, Nursing Sister, 2nd March till 6th October.
- Miss M. Donald, Nursing Sister, 16th November till end of the year.
- Miss K. P. Heckford, Nursing Sister, beginning of the year till 17th June.
- Miss D. A. Porter, Nursing Sister, 25th April till end of the year.
- Miss O. Borrett, Nursing Sister, 25th April till 5th August.
- Miss I. D. McDonald, Nursing Sister, 5th June till 7th September.
- Miss M. C. L. Mapp, Nursing Sister, 25th September till end of the year.
- Miss C. M. Bishop, Nursing Sister, 19th September till 28th December.
- Miss E. B. Crichton, Nursing Sister, 25th September till end of the year.
- Miss M. Kay, Nursing Sister, 6th December till end of the year.
- Miss B. A. D. Acton, Nursing Sister, 6th February till 30th September (sick leave).
- Mr. W. H. Jones, Assistant Storekeeper, beginning of the year till 19th February.
- Mr. C. N. Rowe, Sanitary Superintendent, 14th February till 24th October.



LEAVE OF ABSENCE—*continued.**European*—continued.

Mr. R. E. Owen, Sanitary Superintendent, 27th November till end of the year.  
 Mr. B. T. Bailey, Sanitary Superintendent, beginning of the year till 28th July.  
 Mr. H. L. Bolton, Sanitary Superintendent, 18th August till end of the year.  
 Mr. C. Harlen, Sanitary Superintendent, 21st August till end of the year.  
 Mr. A. Hume, Sanitary Superintendent, 27th November till end of the year.  
 Mr. A. L. George, Sanitary Superintendent, 27th November till end of the year.  
 Mr. H. J. Rance, Sanitary Superintendent, 18th December till end of the year.  
 Mr. J. Spittles, Superintendent, Mental Hospital, 1st May till 1st December.  
 Mrs. C. M. Spittles, Matron, Mental Hospital, 1st May till 1st December.

*Asiatic.*

Mr. D. G. Kelkar, Senior Sub-Assistant Surgeon, 11th June till 8th September (died on leave).  
 Mr. C. K. Borsada, Sub-Assistant Surgeon, 8th March till 3rd July.  
 Mr. A. K. Patreeker, Sub-Assistant Surgeon, 10th February till 26th December.  
 Mr. Chunilal Khanna, Sub-Assistant Surgeon, 21st January till 23rd May.  
 Mr. T. M. Joseph, Sub-Assistant Surgeon, 3rd June till end of the year.  
 Mr. S. R. Abhyanker, Sub-Assistant Surgeon, 7th September till end of the year.  
 Mr. C. K. Desai, Sub-Assistant Surgeon, beginning of the year till 18th March.  
 Mr. P. V. Gokhale, Sub-Assistant Surgeon, 5th October till end of the year.  
 Mr. M. B. Pandya, Sub-Assistant Surgeon, beginning of the year till 15th February.  
 Mr. Sant Ram, Sub-Assistant Surgeon, 5th April till 15th July.  
 Mr. Hakdad Khan, Compounder, 28th June till 23rd December.  
 Mr. Abdul Sattar Khan, Compounder, beginning of the year till 21st January.  
 Mr. L. Maria Dass, Compounder, beginning of the year till 20th June.  
 Mr. M. M. Dass, Compounder, beginning of the year till 18th March.  
 Mr. Dasumal, Compounder, 6th August till 5th December.  
 Mr. Ujagar Singh, Compounder, 13th December till end of the year.  
 Mr. A. Correa, Compounder, 23rd August till end of the year.  
 Mr. S. Mahmood, Compounder, 20th April till 10th October.  
 Mr. L. J. Hidris, Sanitary Inspector, 1st October till end of the year.  
 Mr. D. A. S. Nanayakkara, 2nd Grade Clerk, 11th January till 17th July.  
 Mr. R. D. Pandya, 4th Grade Clerk, 6th August till end of the year.  
 Mr. C. K. Narayanan, 4th Grade Clerk, 20th September till 5th December (special leave).

## TABLE II.

*Expenditure :*

## FINANCIAL.

## PERSONAL EMOLUMENTS :

*Medical Division :*

	£	£
Director of Medical and Sanitary Services ... ..	2,700	
Deputy Director of Medical Service ... ..		
Clerical Staff, Medical Storekeepers, Medical Instructors,		
Packers, Messengers, etc. ... ..		5,980
Senior Medical Officers ... ..		4,485
Medical Officers ... ..		26,290
Sleeping Sickness Officer ... ..		1,035
Dental Surgeons ... ..		1,585
Nursing Staff ... ..		8,510
Superintendent and Matron, Mental Hospital, Hospital		
Quartermaster and Building Inspector ... ..		1,760
Indian Medical Assistants, <i>i.e.</i> , Assistant Surgeon, Senior		
Sub-Assistant Surgeons, Sub-Assistant Surgeons and		
Compounders ... ..		20,385
African Dispensers, Hospital Attendants and Nurses ... ..		6,770
Other Charges ... ..		1,290
Carried forward ... ..	—	80,790

*Expenditure—continued.*PERSONAL EMOLUMENTS—*continued.**Sanitation Division :*

Brought forward ... ..	£	£
Deputy Director of Sanitary Service and Sanitation Officers ...	4,685	80,790
Subordinate Staff for the suppression of Epidemic Diseases ...	15,330	
	<hr/>	20,015

*Laboratory Division :*

Deputy Director of Laboratory Service, Assistant Bacteriologist, Entomologist, Laboratory Assistant and other personnel attached to Laboratory ... ..	4,010	
	<hr/>	4,010

Total Personal Emoluments ... .. 104,815

## OTHER CHARGES :

*Administrative Division :*

Incidental expenditure ... ..	960
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*Medical Division :*

Miscellaneous charges ... ..	1,335
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*Sanitation Division :*

Maintenance of Lepers and Incurables ... ..	3,500
Sanitary Labour ... ..	12,625
Upkeep of Quarantine and Infectious Diseases Hospitals ...	1,520
Sanitary Oils and Disinfectants ... ..	375
Sanitary Equipment ... ..	1,130
Uniforms ... ..	480

*Laboratory Division :*

Vaccines and Serum ... ..	470
Miscellaneous ... ..	550

*Special Expenditure :*

Sleeping Sickness and Special Sanitary Measures ... ..	4,780
Venereal Diseases and Yaws ... ..	785
Maternity and Child Welfare ... ..	2,190
Tuberculosis Scheme ... ..	380
Quinine for Public Purchase at Post Offices ... ..	900

*Hospitals, Dispensaries and Mental Hospitals—Maintenance of :*

Medical and Surgical Stores ... ..	14,485
Equipment, Furniture, Microscopes, etc. ... ..	5,410
Upkeep of Hospitals ... ..	13,000
Upkeep of Mental Hospital, Lutindi ... ..	755
Uniforms ... ..	250

*Miscellaneous Expenditure :*

Books of Reference ... ..	135
Travelling Equipment ... ..	335
Transport, Railage and Passages... ..	16,245
Upkeep of Motor Boats ... ..	190

Total Other Charges ... .. 82,785

Total ... .. £187,600

Receipts :

## STATEMENT OF REVENUE, 1927.

£

From Hospital Fees, Sale of Drugs, etc....	...	...	...	...	5,864
Fees collected by the Port and Marine Department and H.M. Customs for Bills of Health	...	...	...	...	1,068
Sale of Lymph, Vaccine and Serum	...	...	...	...	145
Total	...	...	...	...	<u>£7,077</u>

## TABLES V AND VI.

## RETURN OF DISEASES AND DEATHS (IN-PATIENTS) AND OF DISEASES (OUT-PATIENTS) FOR THE YEAR 1927.

DISEASES.	IN-PATIENTS.					OUT-PATIENTS.			Total Cases, In- and Out-Patients.
	Remained in Hospitals at the end of 1926.	Yearly Total.		Total Cases Treated.	Remain- ing in Hospitals at the end of 1927.	Males	Females.	Total.	
		Admis- sions.	Deaths.						
<b>I.—Epidemic, Endemic, and Infectious Diseases.</b>									
1. Enteric Group—									
(a) Typhoid Fever ..	—	16	5	16	1	1	—	1	17
(b) Paratyphoid A ..	—	6	—	6	—	—	—	—	6
(c) Paratyphoid B ..	—	—	—	—	—	—	—	—	—
(d) Type not defined ..	—	4	1	4	—	—	—	—	4
2. Typhus ..	—	1	1	1	—	—	—	—	1
3. Relapsing Fever ..	2	212	5	214	6	47	12	59	273
4. Undulant Fever ..	—	—	—	—	—	—	—	—	—
5. Malaria—									
(a) Tertian .. ..	15	1,257	11	1,272	16	6,375	1,915	8,290	9,562
(b) Quartan .. ..	—	6	—	6	—	296	31	327	333
(c) Aestivo-autumnal ..	12	2,024	16	2,036	29	8,038	1,786	9,824	11,860
(d) Cachexia .. ..	3	115	3	118	4	653	171	824	942
(e) Blackwater.. ..	1	68	16	69	1	3	—	3	72
(f) Cerebral .. ..	—	11	8	11	—	1	—	1	12
(g) Unclassified ..	5	425	2	430	3	5,896	638	6,534	6,964
6. Smallpox .. ..	—	38	—	38	—	3	2	5	43
Alastrim .. ..	—	1	—	1	—	—	—	—	1
7. Measles .. ..	3	121	1	124	—	391	273	664	788
8. Scarlet Fever.. ..	—	—	—	—	—	—	—	—	—
9. Whooping Cough ..	—	5	—	5	—	56	61	117	122
10. Diphtheria .. ..	—	1	—	1	—	—	—	—	1
11. Influenza .. ..	—	697	2	697	29	1,984	388	2,372	3,069
12. Miliary Fever ..	—	—	—	—	—	—	—	—	—
13. Mumps .. ..	—	23	—	23	—	78	14	92	115
14. Cholera .. ..	—	—	—	—	—	—	—	—	—
15. Epidemic Diarrhœa ..	—	—	—	—	—	4	—	4	4
Carried forward ..	41	5,031	71	5,072	89	23,826	5,291	29,117	34,189



TABLES V AND VI—*continued.*

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) AND OF DISEASES (OUT-PATIENTS)  
FOR THE YEAR 1927—*continued.*

DISEASES.	IN-PATIENTS.					OUT-PATIENTS.			Total Cases, In- and Out-Patients.
	Remained in Hospitals at the end of 1926.	Yearly Total.		Total Cases Treated.	Remain- ing in Hospitals at the end of 1927.	Males.	Females.	Total.	
		Admis- sions.	Deaths.						
Brought forward ..	41	5,031	71	5,072	89	23,826	5,291	29,117	34,189
16. Dysentery—									
(a) Amœbic .. ..	3	221	21	224	16	281	134	415	639
(b) Bacillary .. ..	2	112	8	114	1	115	19	134	248
(c) Undefined or due to other causes ..	—	77	6	77	1	297	76	373	450
17. Plague—									
(a) Bubonic .. ..	—	5	2	5	—	—	—	—	5
(b) Pneumonic .. ..	—	—	—	—	—	—	—	—	—
(c) Septicæmic .. ..	—	—	—	—	—	—	—	—	—
(d) Undefined .. ..	—	—	—	—	—	—	—	—	—
18. Yellow Fever ..	—	—	—	—	—	—	—	—	—
19. Spirochætosis ictero-hæmorrhagica .. ..	—	—	—	—	—	—	—	—	—
20. Leprosy .. ..	47	113	4	160	8	142	48	190	350
21. Erysipelas .. ..	—	8	1	8	—	3	4	7	15
22. Acute Poliomyelitis ..	—	1	—	1	1	—	—	—	1
23. Encephalitis Lethar- gica .. ..	—	—	—	—	—	—	—	—	—
24. Epidemic Cerebro- spinal Fever .. ..	—	7	6	7	—	1	—	1	8
25. Other Epidemic Diseases—									
(a) Rubeola (German Measles) .. ..	—	32	1	32	—	3	—	3	35
(b) Varicella (Chicken- pox) .. ..	11	319	1	330	5	93	26	119	449
(c) Kala Azar .. ..	—	—	—	—	—	—	—	—	—
(d) Phlebotomus Fever ..	—	3	—	3	—	9	1	10	13
(e) Dengue .. ..	—	16	1	16	—	3	2	5	21
(f) Epidemic Dropsy ..	—	—	—	—	—	—	—	—	—
(g) Yaws .. ..	193	4,128	27	4,321	182	52,272	43,088	95,360	99,681
(h) Trypanosomiasis ..	—	15	1	15	3	1	1	2	17
(i) Seven Days' Fever ..	—	3	—	3	—	—	—	—	3
26. Anthrax .. ..	—	4	3	4	—	54	70	124	128
27. Glanders .. ..	—	—	—	—	—	—	—	—	—
28. Rabies .. ..	—	1	1	1	—	1	—	1	2
29. Tetanus .. ..	1	16	10	17	4	—	—	—	17
30. Mycosis .. ..	—	—	—	—	—	7	4	11	11
31. Tuberculosis, Pul- monary and Laryngeal ..	14	200	53	214	27	211	54	265	479
32. Tuberculosis of the Meninges or Central Nervous System ..	—	11	4	11	—	—	—	—	11
33. Tuberculosis of the Intestines or Peri- toneum .. ..	—	5	1	5	1	1	—	1	6
34. Tuberculosis of the Vertebral Column ..	—	9	3	9	1	2	1	3	12
35. Tuberculosis of Bones and Joints .. ..	1	11	—	12	1	7	6	13	25
Carried forward ..	313	10,348	225	10,661	340	77,329	48,825	126,154	136,815

TABLES V AND VI—*continued.*

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) AND OF DISEASES (OUT-PATIENTS)  
FOR THE YEAR 1927—*continued.*

DISEASES.	IN-PATIENTS.					OUT-PATIENTS.			Total Cases, In- and Out-Patients.
	Remained in Hospitals at the end of 1926.	Yearly Total.		Total Cases Treated.	Remain- ing in Hospitals at the end of 1927.	Males.	Females.	Total.	
		Admis- sions.	Deaths.						
Brought forward ..	313	10,348	225	10,661	340	77,329	48,825	126,154	136,815
36. Tuberculosis of other Organs—									
(a) Skin or Subcutaneous Tissue (Lupus)	—	8	—	8	—	29	11	40	48
(b) Bones .. ..	1	4	—	5	—	3	—	3	8
(c) Lymphatic System	1	7	—	8	1	20	11	31	39
(d) Genito-urinary ..	—	2	—	2	1	—	—	—	2
(e) Other Organs ..	—	2	1	2	—	—	4	4	6
37. Tuberculosis dis- seminated—									
(a) Acute .. ..	—	6	1	6	—	7	—	7	13
(b) Chronic .. ..	1	1	2	2	—	—	—	—	2
38. Syphilis—									
(a) Primary .. ..	4	529	3	533	23	2,342	1,239	3,581	4,114
(b) Secondary .. ..	43	459	2	502	14	2,850	1,885	4,735	5,237
(c) Tertiary .. ..	11	343	8	354	27	3,041	2,553	5,594	5,948
(d) Hereditary .. ..	1	28	4	29	1	154	118	272	301
(e) Period not indicated	3	2	—	5	—	861	434	1,295	1,300
39. Soft Chancre ..	3	51	—	54	—	127	7	134	188
40. A.—Gonorrhœa and its complications ..	43	881	5	924	31	3,595	346	3,941	4,865
B.—Gonorrhœal Oph- thalmia .. ..	—	5	—	5	—	34	2	36	41
C.—Gonorrhœal Ar- thritis .. ..	1	30	—	31	—	113	9	122	153
D.—Granuloma Vene- nerum .. ..	—	1	—	1	—	2	—	2	3
41. Septicæmia .. ..	1	7	5	8	—	—	—	—	8
42. Other Infectious Diseases .. ..	—	—	—	—	—	—	—	—	—
II.—General Diseases not mentioned above.									
43. Cancer or other malign- ant Tumours of the Buccal Cavity .. ..	—	10	2	10	1	1	—	1	11
44. Cancer or other malign- ant Tumours of the Stomach or Liver ..	—	6	4	6	—	—	—	—	6
45. Cancer or other malign- ant Tumours of the Peritoneum, Intestines, Rectum .. ..	—	3	—	3	—	—	—	—	3
46. Cancer or other malign- ant Tumours of the Female Genital Organs	—	6	3	6	—	—	1	1	7
47. Cancer or other malign- ant Tumours of the Breast .. ..	—	5	—	5	—	—	3	3	8
Carried forward ..	426	12,744	265	13,170	439	90,508	55,448	145,956	159,126

TABLES V AND VI—*continued.*RETURN OF DISEASES AND DEATHS (IN-PATIENTS) AND OF DISEASES (OUT-PATIENTS)  
FOR THE YEAR 1927—*continued.*

DISEASES	IN-PATIENTS.					OUT-PATIENTS.			Total Cases, In- and Out-Patients.
	Remained in Hospitals at the end of 1926.	Yearly Total.		Total Cases Treated.	Remain- ing in Hospitals at the end of 1927.	Males.	Females.	Total.	
		Admis- sions.	Deaths.						
Brought forward ..	426	12,744	265	13,170	439	90,508	55,448	145,956	159,126
48. Cancer or other malig- nant Tumours of the Skin .. .. .	1	5	—	6	2	1	1	2	8
49. Cancer or other malig- nant Tumours of the Organs not specified ..	1	19	4	20	2	3	3	9	26
50. Tumours, non-malig- nant .. .. .	11	99	3	110	4	48	19	67	177
51. Acute Rheumatism ..	—	90	1	90	2	831	179	1,010	1,100
52. Chronic Rheumatism	1	112	4	113	1	1,538	490	2,028	2,141
53. Scurvy (including Barlow's Disease) ..	5	3	1	8	—	24	10	34	42
54. Pellagra .. .. .	—	1	1	1	—	2	1	3	4
55. Beri-Beri .. .. .	1	21	2	22	3	1	—	1	23
56. Rickets .. .. .	—	1	1	1	—	28	9	37	38
57. Diabetes (not includ- ing Insipidus) .. ..	—	5	—	5	—	14	1	15	20
58. Anæmia— (a) Pernicious .. ..	—	97	15	97	7	203	76	279	376
(b) Other Anæmias and Chlorosis .. .. .	6	78	12	84	—	426	197	623	707
59. Diseases of the Pituitary Body ..	—	1	—	1	—	—	—	—	1
60. Diseases of the Thy- roid Gland— (a) Exophthalmic Goitre	—	3	—	3	—	2	5	7	10
(b) Other Diseases of the Thyroid Gland, Myxædema .. .. .	—	1	—	1	—	12	—	12	13
61. Diseases of the Para- Thyroid Glands ..	—	—	—	—	—	—	—	—	—
62. Diseases of the Thy- mus .. .. .	—	—	—	—	—	—	—	—	—
63. Diseases of the Supra- Renal Glands .. ..	—	—	—	—	—	—	—	—	—
64. Diseases of the Spleen	—	15	—	15	1	223	77	300	315
65. Leukæmia— (a) Leukæmia .. ..	—	6	3	6	1	1	—	1	7
(b) Hodgkin's Disease..	—	—	—	—	—	7	4	11	11
66. Alcoholism .. ..	—	2	1	2	—	—	—	—	2
67. Chronic Poisoning by mineral substances (lead, mercury, etc.) ..	—	—	—	—	—	1	—	1	1
68. Chronic Poisoning by organic substances (morphia, cocaine, etc.)	—	—	—	—	—	—	—	—	—
Carried forward ..	452	13,303	313	13,755	462	93,873	56,520	150,393	164,148



TABLES V AND VI—*continued.*

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) AND OF DISEASES (OUT-PATIENTS)  
FOR THE YEAR 1927—*continued.*

DISEASES.	IN-PATIENTS.					OUT-PATIENTS.			Total Cases, In- and Out-Patients.
	Remained in Hospitals at the end of 1926.	Yearly Total.		Total Cases Treated.	Remain- ing in Hospitals at the end of 1927.	Males.	Females.	Total.	
		Admis- sions.	Deaths.						
Brought forward ..	452	13,303	313	13,755	462	93,873	56,520	150,393	164,148
69. Other General Diseases—									
Auto-intoxication ..	—	—	—	—	—	—	—	—	—
Purpura Hæmorrhagica ..	—	—	—	—	—	—	—	—	—
Hæmophilia .. ..	—	—	—	—	—	—	—	—	—
Diabetes Insipidus ..	—	—	—	—	—	—	—	—	—
Others .. ..	3	30	2	33	2	71	22	93	126
III.—Affections of the Nervous System and Organs of the Senses.									
70. Encephalitis (not including Encephalitis Lethargica) .. ..	—	1	1	1	—	5	4	9	10
71. Meningitis (not including Tuberculosis, Meningitis or Cerebro-spinal Meningitis) .. ..	—	8	5	8	1	5	—	5	13
72. Locomotor Ataxia ..	1	9	—	10	—	10	1	11	21
73. Other affections of the Spinal Cord .. ..	—	5	—	5	4	3	—	3	8
74. Apoplexy—									
(a) Hemiplegia ..	—	21	3	21	—	29	5	34	55
(b) Embolism .. ..	—	3	1	3	—	—	—	—	3
(c) Thrombosis ..	—	—	—	—	—	—	—	—	—
75. Paralysis—									
(a) Hæmorrhage ..	1	22	3	23	3	—	—	—	23
(b) Other Paralyses ..	3	38	4	41	5	29	7	36	77
76. General Paralysis of the Insane .. ..	—	4	1	4	—	1	—	1	5
77. Other forms of Mental Alienation .. ..	1	89	2	90	4	36	1	37	127
78. Epilepsy .. ..	—	74	2	74	3	136	58	194	268
79. Eclampsia, Convulsions (non-puerperal), 5 years or over .. ..	—	1	1	1	—	9	—	9	10
80. Infantile Convulsions ..	—	10	6	10	—	7	5	12	22
81. Chorea .. ..	—	2	—	2	—	1	1	2	4
82. A.—Hysteria .. ..	—	25	1	25	—	10	14	24	49
B.—Neuritis .. ..	1	28	—	29	1	534	113	647	676
C.—Neurasthenia ..	4	36	1	40	2	428	108	536	576
83. Cerebral Softening ..	1	1	—	2	—	—	—	—	2
84. Other affections of the Nervous System, such as Paralysis Agitans ..	1	33	3	34	—	1,069	246	1,315	1,349
Carried forward ..	468	13,743	349	14,211	487	96,256	57,105	153,361	167,572

TABLES V AND VI—*continued.*

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) AND OF DISEASES (OUT-PATIENTS)  
FOR THE YEAR 1927—*continued.*

DISEASES.	IN-PATIENTS.					OUT-PATIENTS.			Total Cases, In- and Out-Patients.
	Remained in Hospitals at the end of 1926.	Yearly Total.		Total Cases Treated.	Remain- ing in Hospitals at the end of 1927.	Males.	Females.	Total.	
		Admis- sions.	Deaths.						
Brought forward ..	468	13,743	349	14,211	487	96,256	57,105	153,361	167,572
85. Affections of the Organs of Vision—									
(a) Diseases of the Eye	1	33	—	34	6	153	52	205	239
(b) Conjunctivitis ..	3	350	—	353	12	8,790	4,549	13,339	13,692
(c) Trachoma ..	2	12	—	14	—	243	92	335	349
(d) Tumours of the Eye	—	4	—	4	2	41	26	67	71
(e) Other affections of the Eye ..	8	235	1	243	3	1,074	268	1,342	1,585
86. Affections of the Ear or Mastoid Sinus ..	3	80	1	83	6	3,479	1,370	4,849	4,932
IV.—Affections of the Circulatory System.									
87. Pericarditis ..	—	1	—	1	1	3	—	3	4
88. Acute Endocarditis or Myocarditis ..	—	4	—	4	—	9	4	13	17
89. Angina Pectoris ..	—	—	—	—	—	1	—	1	1
90. Other Diseases of the Heart—									
(a) Valvular— ..	—	16	2	16	—	50	16	66	82
Mitral ..	2	23	6	25	1	28	10	38	63
Aortic ..	—	3	2	3	—	2	1	3	6
Tricuspid ..	—	—	—	—	—	—	1	1	1
Pulmonary ..	—	—	—	—	—	1	—	1	1
(b) Myocarditis ..	—	6	2	6	—	43	10	53	59
91. Diseases of the Arteries—									
(a) Aneurism ..	—	1	1	1	—	2	1	3	4
(b) Arterio-Sclerosis ..	—	1	—	1	—	2	1	3	4
(c) Other Diseases ..	—	—	—	—	—	2	2	4	4
92. Embolism or Thrombosis (non-cerebral) ..	—	—	—	—	—	—	—	—	—
93. Diseases of the Veins—									
Hæmorrhoids ..	1	17	—	18	1	84	4	88	106
Varicose ..	—	4	—	4	—	14	1	15	19
Phlebitis ..	—	9	—	9	—	12	1	13	22
94. Diseases of the Lymphatic System—									
Filariasis ..	1	8	—	9	2	20	15	35	44
Lymphangitis ..	—	10	—	10	—	108	23	131	141
Lymphadenitis, Bubo (non-specific) ..	3	79	1	82	—	556	40	596	678
95. Hæmorrhage of un- determined cause ..	—	—	—	—	—	16	6	22	22
96. Other affections of the Circulatory System	1	11	1	12	—	49	10	59	71
Carried forward ..	493	14,650	366	15,143	521	111,038	63,608	174,646	189,789

TABLES V AND VI—*continued.*RETURN OF DISEASES AND DEATHS (IN-PATIENTS) AND OF DISEASES (OUT-PATIENTS)  
FOR THE YEAR 1927—*continued.*

DISEASES.	IN-PATIENTS.					OUT-PATIENTS.			Total Cases, In- and Out-Patients.
	Remained in Hospitals at the end of 1926.	Yearly Total.		Total Cases Treated.	Remain- ing in Hospitals at the end of 1927.	Males.	Females.	Total.	
		Admis- sions.	Deaths.						
Brought forward ..	493	14,650	366	15,143	521	111,038	63,608	174,646	189,789
<b>V.—Affections of the Respiratory System.</b>									
97. Diseases of the Nasal Passages—									
Adenoids .. ..	—	15	—	15	—	42	12	54	69
Polypus .. ..	—	1	—	1	—	8	1	9	10
Rhinitis .. ..	—	1	—	1	1	33	10	43	44
Coryza .. ..	—	79	—	79	4	1,345	162	1,507	1,586
98. Affections of the Larynx—Laryngitis ..									
..	—	16	—	16	—	280	86	366	382
99. Bronchitis—									
(a) Acute .. ..	7	672	4	679	8	20,765	6,127	26,892	27,571
(b) Chronic .. ..	2	239	6	241	10	5,198	1,682	6,880	7,121
(c) Unclassified ..	5	20	—	25	4	1,253	525	1,778	1,803
100. Broncho-Pneumonia	2	122	36	124	6	110	51	161	285
101. Pneumonia—									
(a) Lobar .. ..	10	408	89	418	16	99	53	152	570
(b) Unclassified ..	—	14	5	14	2	9	4	13	27
102. Pleurisy, Empyema	2	106	4	108	—	125	40	165	273
103. Congestion of the Lungs .. ..									
..	—	—	—	—	—	1	—	1	1
104. Gangrene of the Lungs .. ..									
..	—	1	1	1	—	—	—	—	1
105. Asthma .. ..	—	70	2	70	2	187	90	277	347
106. Pulmonary Em-physema .. ..									
..	—	2	—	2	—	9	2	11	13
107. Other affections of the Lungs— .. ..									
..	1	17	2	18	—	139	21	160	178
Pulmonary Spira- chætosis .. ..	—	—	—	—	—	—	—	—	—
<b>VI.—Diseases of the Digestive System.</b>									
108. A.—Diseases of Teeth or Gums—									
Caries, Pyorrhœa, etc. .. ..	—	59	—	59	1	5,695	2,596	8,291	8,350
B.—Other affections of the Mouth—									
Stomatitis .. ..	—	23	1	23	1	930	373	1,303	1,326
Glossitis, etc. ..	—	14	2	14	—	262	85	347	361
109. Affections of the Pharynx or Tonsils—									
Tonsillitis .. ..	—	98	—	98	1	1,417	452	1,869	1,967
Pharyngitis .. ..	—	49	—	49	—	1,279	271	1,550	1,599
110. Other affections of the Oesophagus ..									
..	—	—	—	—	—	18	12	30	30
111. A.—Ulcer of the Stomach .. ..									
..	—	3	—	3	—	5	3	8	11
B.—Ulcer of the Duodenum ..									
..	—	4	1	4	—	1	1	2	6
Carried forward ..	522	16,683	519	17,205	577	150,248	76,267	226,515	243,720



TABLES V AND VI—*continued.*RETURN OF DISEASES AND DEATHS (IN-PATIENTS) AND OF DISEASES (OUT-PATIENTS)  
FOR THE YEAR 1927—*continued.*

DISEASES.	IN-PATIENTS.					OUT-PATIENTS.			Total Cases, In- and Out-Patients.
	Remained in Hospitals at the end of 1926.	Yearly Total.		Total Cases Treated.	Remain- ing in Hospitals at the end of 1927.	Males.	Females.	Total.	
		Admis- sions.	Deaths.						
Brought forward ..	522	16,683	519	17,205	577	150,248	76,267	226,515	243,720
112. Other affections of the Stomach—									
Gastritis .. ..	—	84	1	84	1	303	112	415	499
Dyspepsia, etc... ..	1	123	1	124	2	1,984	693	2,677	2,801
113. Diarrhœa and En- teritis—									
Under two years ..	3	214	13	217	1	2,251	830	3,081	3,298
114. Diarrhœa and En- teritis—									
Two years and over ..	—	664	66	664	8	3,677	768	4,445	5,109
Colitis .. ..	2	92	2	94	1	924	142	1,066	1,160
Ulceration .. ..	—	17	1	17	—	126	30	156	173
114A. Sprue .. ..	—	—	—	—	—	—	—	—	—
115. Ankylostomiasis ..	29	729	121	758	45	2,807	1,513	4,320	5,078
116. Diseases due to Intes- tinal Parasites—									
(a) Cestoda (Tænia) ..	1	204	1	205	4	4,329	543	4,872	5,077
(b) Trematoda (Flukes)	9	17	—	26	—	92	7	99	125
(c) Nematoda (other than Ankylostoma)	—	6	—	6	—	23	14	37	43
Ascaris .. ..	—	42	1	42	1	3,407	1,936	5,343	5,385
Tricocephalus Dispar	—	—	—	—	—	—	1	1	1
Trichina .. ..	—	1	—	1	—	—	—	—	1
Dracunculus .. ..	1	—	—	1	—	—	—	—	1
Strongylus .. ..	—	1	—	1	—	1	—	1	2
Oxyuris .. ..	—	4	—	4	1	15	5	20	24
(d) Coccidia .. ..	—	—	—	—	—	—	—	—	—
(e) Other Parasites ..	—	—	—	—	—	7	1	8	8
(f) Unclassified .. ..	—	—	—	—	—	1	1	2	2
117. Appendicitis .. ..	2	14	1	16	1	6	—	6	22
118. Hernia .. ..	5	219	6	224	9	115	5	120	344
119. A.—Affections of the Anus, Fistula, etc.	1	14	1	15	1	62	11	73	88
B.—Other affections of the Intestines	3	58	6	61	1	827	444	1,271	1,332
Enteroptosis .. ..	—	5	3	5	—	85	—	85	90
Constipation .. ..	1	267	—	268	11	16,462	4,566	21,028	21,296
120. Acute Yellow Atro- phy of the Liver ..	—	—	—	—	—	—	—	—	—
121. Hydatid of the Liver	—	—	—	—	—	3	—	3	3
122. Cirrhosis of the Liver—									
(a) Alcoholic .. ..	—	12	5	12	1	1	1	2	14
(b) Other forms .. ..	1	12	4	13	1	4	3	7	20
123. Biliary Calculus ..	—	2	—	2	—	6	—	6	8
124. Other affections of the Liver—									
Abscess .. ..	1	11	1	12	2	11	2	13	25
Hepatitis .. ..	—	48	2	48	1	143	40	183	231
Cholecystitis .. ..	—	6	—	6	—	1	2	3	9
Jaundice .. ..	1	27	3	28	1	60	19	79	107
Carried forward ..	583	19,576	758	20,159	670	187,981	87,956	275,937	296,096

TABLES V AND VI—*continued.*RETURN OF DISEASES AND DEATHS (IN-PATIENTS) AND OF DISEASES (OUT-PATIENTS)  
FOR THE YEAR 1927—*continued.*

DISEASES.	IN-PATIENTS.					OUT-PATIENTS.			Total Cases, In- and Out-Patients.
	Remained in Hospitals at the end of 1926.	Yearly Total.		Total Cases Treated.	Remain- ing in Hospitals at the end of 1927.	Males.	Females.	Total.	
		Admis- sions.	Deaths.						
Brought forward ..	583	19,576	758	20,159	670	187,981	87,956	275,937	296,096
125. Diseases of the Pancreas .. ..	—	—	—	—	—	—	—	—	—
126. Peritonitis (of un- known cause) .. ..	—	5	4	5	—	13	3	16	21
127. Other affections of the Digestive System ..	2	47	3	49	—	309	70	379	428
VII.—Diseases of the Genito-Urinary System (Non-Venereal)									
128. Acute Nephritis ..	1	31	9	32	1	89	41	130	162
129. Chronic Nephritis ..	—	30	5	30	2	12	8	20	50
130. A.—Chyluria ..	—	—	—	—	—	9	1	10	10
B.—Schistosomiasis ..	2	201	6	203	4	899	186	1,085	1,288
131. Other affections of the Kidneys—Pyelitis, etc. .. ..	—	18	1	18	—	25	4	29	47
132. Urinary Calculus ..	2	13	—	15	—	11	1	12	27
133. Diseases of the Bladder—Cystitis ..	1	37	3	38	—	150	13	163	201
134. Diseases of the Urethra—									
(a) Stricture .. ..	1	56	3	57	3	48	1	49	106
(b) Other .. ..	—	20	—	20	—	48	—	48	68
135. Diseases of the Prostate—									
Hypertrophy .. ..	—	1	—	1	—	3	—	3	4
Prostatitis .. ..	—	—	—	—	—	3	—	3	3
136. Diseases (non-venereal) of the Genital Organs of Man—									
Epididymitis .. ..	1	118	2	119	6	103	—	103	222
Orchitis .. ..	1	126	1	127	—	516	—	516	643
Hydrocele .. ..	13	307	3	320	18	139	—	139	459
Ulcer of Penis .. ..	—	50	—	50	1	63	—	63	113
137. Cysts or other non-malignant Tumours of the Ovaries .. ..	—	17	—	17	3	1	13	14	31
138. Salpingitis—Abscess of the Pelvis .. ..	1	6	1	7	—	—	2	2	9
139. Uterine Tumours (non-malignant) ..	—	4	—	4	—	—	7	7	11
140. Uterine Hæmorrhage (non-puerperal) ..	—	8	—	8	1	—	34	34	42
Carried forward ..	608	20,671	799	21,279	709	190,422	88,340	278,762	300,041

TABLES V AND VI—*continued.*

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) AND OF DISEASES (OUT-PATIENTS)  
FOR THE YEAR 1927—*continued.*

DISEASES.	IN-PATIENTS.					OUT-PATIENTS.			Total Cases, In- and Out-Patients.
	Remained in Hospitals at the end of 1926.	Yearly Total.		Total Cases Treated.	Remain- ing in Hospitals at the end of 1927.	Males.	Females.	Total.	
		Admis- sions.	Deaths.						
Brought forward ..	608	20,671	799	21,279	709	190,422	88,340	278,762	300,041
141. A.—Metritis ..	—	19	—	19	3	—	28	28	47
B.—Other affections of the Female Genital Organs..	—	21	—	21	—	—	43	43	64
Displacement of Uterus ..	1	3	—	4	—	—	8	8	12
Amenorrhœa ..	—	1	—	1	—	—	66	66	67
Dysmenorrhœa ..	—	7	—	7	—	—	117	117	124
Leucorrhœa ..	—	7	—	7	—	—	38	38	45
142. Diseases of the Breast (non-puer- peral) ..	—	3	—	3	—	—	8	8	11
Mastitis ..	1	12	—	13	—	—	200	200	213
Abscess of Breast ..	1	6	—	7	—	—	64	64	71
VIII.—Puerperal State.									
143. A.—Normal Labour ..	4	156	1	160	6	—	25	25	185
B.—Accidents of Pregnancy—									
(a) Abortion ..	—	41	1	41	1	—	39	39	80
(b) Ectopic Gesta- tion ..	—	2	1	2	—	—	—	—	2
(c) Other accidents of Pregnancy ..	—	41	6	41	1	—	45	45	86
144. Puerperal Hæ- morrhage ..	—	4	—	4	—	—	4	4	8
145. Other accidents of Parturition ..	—	14	—	14	1	—	6	6	20
146. Puerperal Septi- cæmia ..	—	4	2	4	—	—	3	3	7
147. Phlegmasia Dolens..	—	—	—	—	—	—	1	1	1
148. Puerperal Eclampsia	—	1	1	1	—	—	1	1	2
149. Sequelæ of Labour..	—	4	—	4	—	—	6	6	10
150. Puerperal affections of the Breast ..	—	2	—	2	—	—	3	3	5
IX.—Affections of the Skin and Cellular Tissues.									
151. Gangrene ..	—	53	9	53	6	162	71	233	286
152. Boil ..	—	103	—	103	4	2,155	366	2,521	2,624
153. Abscess ..	18	456	7	474	28	2,099	441	2,540	3,014
Carbuncle ..	1	7	—	8	1	17	8	25	33
Whitlow ..	1	29	—	30	—	232	57	289	319
Cellulitis ..	7	465	5	472	25	1,788	232	2,020	2,492
154. A.—Tinia ..	—	13	—	13	—	190	57	247	260
B.—Scabies ..	1	163	—	164	4	8,567	2,718	11,285	11,449
Carried forward ..	643	22,308	832	22,951	789	205,632	92,995	298,627	321,578



TABLES V AND VI—*continued.*RETURN OF DISEASES AND DEATHS (IN-PATIENTS) AND OF DISEASES (OUT-PATIENTS)  
FOR THE YEAR 1927—*continued.*

DISEASES	IN-PATIENTS.					OUT-PATIENTS.			Total Cases, In- and Out-Patients.
	Remained in Hospitals at the end of 1926.	Yearly Total.		Total Cases Treated.	Remain- ing in Hospitals at the end of 1927.	Males.	Females.	Total.	
		Admis- sions.	Deaths.						
Brought forward ..	643	22,308	832	22,951	789	205,632	92,995	298,627	321,578
155. Other Diseases of the Skin—									
Ulcers .. ..	152	1,468	25	1,620	170	11,479	3,204	14,683	16,303
Erythema .. ..	—	—	—	—	—	4	2	6	6
Urticaria .. ..	—	11	—	11	—	158	47	205	216
Eczema .. ..	4	65	—	69	1	941	294	1,235	1,304
Herpes .. ..	2	9	—	11	—	110	22	132	143
Psoriasis .. ..	3	5	—	8	—	38	5	43	51
Elephantiasis .. ..	10	136	4	146	19	184	48	232	378
Myiasis .. ..	1	50	2	51	3	2,000	433	2,433	2,484
Chigoes .. ..	2	99	—	101	4	881	165	1,046	1,147
Cutaneous Leish- maniasis .. ..	10	18	—	28	—	29	10	39	67
Others .. ..	12	378	3	390	16	3,727	1,192	4,919	5,309
X.—Diseases of Bones and Organs of Locomotion other than Tuberculosis.									
156. Diseases of Bones—									
Osteitis .. ..	5	72	1	77	9	302	133	435	512
157. Diseases of Joints—									
Arthritis .. ..	—	136	2	136	12	1,135	224	1,359	1,495
Synovitis .. ..	—	51	—	51	3	447	98	545	596
158. Other diseases of Bones or Organs of Locomotion .. ..	1	171	2	172	6	3,962	1,002	4,964	5,136
XI.—Malformations.									
159. Malformations—									
Hypospadias .. ..	—	—	—	—	—	—	—	—	—
Hydrocephalus.. ..	—	—	—	—	—	—	—	—	—
Spina Bifida, etc. ..	—	2	1	2	—	—	—	—	2
XII.—Diseases of Infancy.									
160. Congenital Debility	—	2	2	2	—	9	1	10	12
161. Premature Birth ..	—	—	—	—	—	—	—	—	—
162. Other affections of Infancy .. ..	—	2	2	2	—	3	1	4	6
163. Infant Neglect (in- fants of three months or over) .. ..	—	1	—	1	—	—	—	—	1
Carried forward ..	845	24,984	876	25,829	1,032	231,041	99,876	330,917	356,746

TABLES V AND VI—*continued.*

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) AND OF DISEASES (OUT-PATIENTS)  
FOR THE YEAR 1927—*continued.*

DISEASES.	IN-PATIENTS.					OUT-PATIENTS.			Total Cases, In- and Out-Patients.
	Remained in Hospitals at the end of 1926.	Yearly Total.		Total Cases Treated.	Remain- ing in Hospitals at the end of 1927.	Males.	Females.	Total.	
		Admis- sions.	Deaths.						
Brought forward ..	845	24,984	876	25,829	1,032	231,041	99,876	330,917	356,746
<b>XIII.—Affections of Old Age.</b>									
164. Senility .. ..	1	23	10	24	—	34	14	48	72
Senile Dementia ..	—	—	—	—	—	—	—	—	—
<b>XIV.—Affections pro- duced by External Causes.</b>									
165. Suicide by Poisoning	—	1	1	1	—	—	—	—	1
166. Corrosive Poisoning (intentional) .. ..	—	—	—	—	—	—	—	—	—
167. Suicide by Gas Poisoning .. ..	—	—	—	—	—	—	—	—	—
168. Suicide by Hanging or Strangulation ..	—	—	—	—	—	—	1	1	1
169. Suicide by Drowning	—	—	—	—	—	—	—	—	—
170. Suicide by Firearms	—	1	1	1	—	—	—	—	1
171. Suicide by Cutting or Stabbing Instruments	—	6	3	6	—	—	—	—	6
172. Suicide by Jumping from a Height .. ..	—	—	—	—	—	—	—	—	—
173. Suicide by Crushing	—	—	—	—	—	—	—	—	—
174. Other Suicides ..	—	—	—	—	—	—	—	—	—
175. Food Poisoning—									
Botulism .. ..	—	5	—	5	—	—	1	1	6
176. Attacks of Poisonous Animals—									
Snake Bite .. ..	—	34	2	34	1	59	4	63	97
Insect Bite .. ..	—	11	—	11	—	120	24	144	155
177. Other Accidental Poisonings .. ..	—	11	1	11	1	3	3	6	17
178. Burns (by Fire) ..	—	146	16	146	3	688	253	941	1,087
179. Burns (other than by Fire) .. ..	—	20	1	20	2	171	36	207	227
180. Suffocation (acci- dental) .. ..	—	—	—	—	—	—	—	—	—
181. Poisoning by Gas (accidental) .. ..	—	—	—	—	—	—	—	—	—
182. Drowning (acci- dental) .. ..	—	3	—	3	—	—	—	—	3
183. Wounds (by Fire- arms, war excepted) ..	—	24	2	24	4	3	—	3	27
184. Wounds (by Cutting or Stabbing Instru- ments) .. ..	5	405	16	410	31	5,357	659	6,016	6,426
185. Wounds (by Fall) ..	—	453	2	453	15	7,551	890	8,441	8,894
Carried forward* ..	851	26,127	931	26,978	1,089	245,027	101,761	346,788	373,766

TABLES V AND VI—*continued.*RETURN OF DISEASES AND DEATHS (IN-PATIENTS) AND OF DISEASES (OUT-PATIENTS)  
FOR THE YEAR 1927—*continued.*

DISEASES.	IN-PATIENTS.					OUT-PATIENTS.			Total Cases, In- and Out-Patients.
	Remained in Hospitals at the end of 1926.	Yearly Total.		Total Cases Treated.	Remain- ing in Hospitals at the end of 1927.	Males.	Females.	Total.	
		Admis- sions.	Deaths.						
Brought forward ..	851	26,127	931	26,978	1,089	245,027	101,761	346,788	373,766
186. Wounds (in Mines or Quarries) .. ..	3	61	—	64	1	742	11	753	817
187. Wounds (by Ma- chinery).. ..	6	159	4	165	5	1,141	16	1,157	1,322
188. Wounds (crushing, e.g., railway accidents, etc.) .. ..	2	65	9	67	2	457	12	469	536
189. Injuries inflicted by Animals, Bites, Kicks, etc. .. ..	6	174	12	180	13	2,148	621	2,769	2,949
190. Wounds inflicted on Active Service .. ..	1	1	—	2	—	2	—	2	4
191. Executions of civi- lians by belligerents ..	—	—	—	—	—	—	—	—	—
192. A.—Over fatigue ..	—	1	—	1	—	4	—	4	5
B.—Hunger or Thirst ..	—	1	—	1	—	—	—	—	1
193. Exposure to Cold, Frost Bite, etc. ..	—	2	—	2	—	9	4	13	15
194. Exposure to Heat—									
Heat Stroke .. ..	—	7	1	7	—	1	—	1	8
Sunstroke .. ..	—	5	1	5	—	—	—	—	5
195. Lightning Stroke ..	—	—	—	—	—	—	—	—	—
196. Electric Shock ..	—	—	—	—	—	—	—	—	—
197. Murder by Firearms ..	—	—	—	—	—	—	—	—	—
198. Murder by Cutting or Stabbing Instruments ..	—	2	2	2	—	—	2	2	4
199. Murder by other means .. ..	—	2	2	2	—	—	—	—	2
200. Infanticide (murder of an infant under one year) .. ..	—	—	—	—	—	—	—	—	—
201. A.—Dislocation ..	1	33	—	34	3	17	2	19	53
B.—Sprain .. ..	2	94	—	96	3	815	85	900	996
C.—Fracture .. ..	3	267	19	270	22	81	16	97	367
202. Other injuries ..	18	549	1	567	25	10,510	1,669	12,179	12,746
203. Deaths by Violence of unknown cause ..	—	—	—	—	—	—	—	—	—
XV.—Ill-Defined Diseases.									
204. Sudden Death (cause unknown) .. ..	—	2	2	2	—	—	—	—	2
Carried forward ..	893	27,552	984	28,445	1,163	260,954	104,199	365,153	393,598



TABLES V AND VI—*continued.*

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) AND OF DISEASES (OUT-PATIENTS)  
FOR THE YEAR 1927—*continued.*

DISEASES.	IN-PATIENTS.					OUT-PATIENTS.			Total Cases, In- and Out-Patients.
	Remained in Hospitals at the end of 1926.	Yearly Total.		Total Cases Treated.	Remain- ing in Hospitals at the end of 1927.	Males.	Females.	Total.	
Brought forward ..	893	27,552	984	28,445	1,163	260,954	104,199	365,153	393,598
205. Diseases not already specified or ill-de- fined—									
Ascites .. .. .	—	37	5	37	4	68	42	110	147
Œdema .. .. .	4	12	1	16	—	37	16	53	69
Asthenia .. .. .	—	6	—	6	—	39	16	55	61
Shock .. .. .	—	4	—	4	—	2	1	3	7
Hyperpyrexia .. ..	—	10	—	10	—	58	9	67	77
Neuralgia and Headache	1	60	—	61	2	1,059	240	1,299	1,360
Not yet Diagno.ed ..	—	6	—	6	—	1	—	1	7
Pyrexia of uncertain origin.. .. .	10	198	2	208	12	849	138	987	1,195
Debility.. .. .	—	—	—	—	—	—	—	—	—
B.—Malingering ..	—	15	—	15	—	34	—	34	49
TOTAL .. .. .	908	27,900	992	28,808	1,181	263,101	104,661	367,762	396,570
Total Cases treated by Medical Staff on tour	—	—	—	—	—	7,551	6,654	14,205	14,205
Total Cases treated by African Dispensers ..	—	287	8	287	—	5,108	4,089	9,197	9,484
Total Cases treated by Missionaries supplied with Government drugs and equipment ..	—	—	—	—	—	3,443	3,131	6,574	6,574
GRAND TOTAL ..	908	28,187	1,000	29,095	1,181	279,203	118,535	397,738	426,833

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